FINAL REPORT

Proposed changes to building product regulation

Cost-benefit analysis

Prepared for
Senior Officials

April 2024

THE CENTRE FOR INTERNATIONAL ECONOMICS
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Background

As part of the response to the Building Confidence Report (BCR) — specifically Recommendation 21 — the National Building Product Assurance Framework (BPAF) was developed as a first step in addressing the building product safety issues identified in the BCR.

The aim of the BPAF is to improve building product compliance with the National Construction Code (NCC), which will reduce the risk associated with the use of inferior and sometimes dangerous products being used in the construction of buildings.

Ministers have endorsed the required deliverable of the BPAF to be: 'A nationally consistent and coordinated system of building product assurance and regulation to ensure that building products are manufactured, supplied and utilised in compliance and conformance with laws, codes and standards to deliver trustworthy buildings.'

To progress this issue, Weir Legal & Consulting (WLC) and the Centre for International Economics (CIE) were engaged to research, review and assess existing building control measures to address the issues associated with the manufacture, supply and use of non-conforming and non-compliant building products.

This report is a cost-benefit analysis (albeit with significant limitations) of a series of options identified by WLC.

Scope of cost-benefit analysis

The CBA covers the following integrated elements:

- Common aspects across all options includes:
  - requirement that relevant information accompanies a product along the 'chain of responsibility'
  - mandatory requirement to report non-conforming building products
  - a regulator that:
    - investigates complaints/enquiries (i.e. reactive compliance and enforcement activities)
    - undertakes some proactive compliance and enforcement activities
    - has the power to enforce the regulations, including through issuing orders that: require a change in the way products are marketed, require that a product be withdrawn from sale; require that a product be recalled.

- Various options for product identifiers and labelling requirements, corresponding to Options 9-12 in the draft WLC report (see table 1).

1 Options for product identifier and labelling requirements

	Any product identifier	Global digital identifier
Must have minimum information accessible via a website (address not required by product)	**Option 9:** ▪ Any product identifier ▪ Website (but not required on product or package)	**Option 11:** ▪ Global digital identifier ▪ Website (but not required on product or package)
Must have website address on product or package	**Option 10:** ▪ Any product identifier ▪ Website address on product or package	**Option 12:** ▪ Global digital identifier ▪ Website address on product or package

Source: WLC.

Assessment of the proposed registration options

The WLC report also proposes several options relating to a registration system for particular building products deemed to be 'high risk'. The options vary depending on:

- whether the 'responsible supplier' or the product is registered; and
- what products are registered — the high-risk products identified by WLC include:
  - fire safety systems,
  - steel,
  - timber,
  - glass and
  - water-proofing membranes.

The primary purpose of the registration requirements would be to provide a revenue stream to fun compliance and enforcement activities. As such, this was treated as a question of who should fund the compliance and enforcement activities with reference to best practice principles.

Key findings

CBA options

Although there is much uncertainty around the costs and benefits of the identified BPAF options — largely due to a lack of reliable information — key findings of the CBA are as follows.

- The benefits of expanding building product 'chain of responsibility' laws beyond Queensland and NSW to the other jurisdictions (this is effectively Option 9) appears to deliver significant net benefits.

- It is also plausible that there could be significant net benefits from mandatory labelling on the product or packaging (depending on the nature of the product). The costs of the mandatory labelling requirements are estimated to be relatively modest, while labelling could potentially help to avoid issues relating to product substitution.
- The benefits for mandating interoperable digital product identifiers are uncertain. However, we consider it likely that the benefits from more effective identification of product substitution and the potential for additional productivity gains would outweigh the associated costs.

Registration of high-risk products

In general, there is a sound in-principle case to recover the cost of compliance and enforcement activities from suppliers though user charges.

In terms of the cost-effectiveness, this largely depends on factors such as:

- the details of the registration process
- the way products are defined (including what constitutes a separate product).

Based on some high-level assumptions, we find that:

- User charges collected through a simple self-registration process are likely to be a more efficient funding mechanism than general taxation revenue (i.e. the efficiency gains from the avoided taxes are likely to outweigh the costs associated with developing and maintaining the register and the self-registration process).
- On the other hand, the costs associated an assessment by a Conformity Assessment Body (CAB) would outweigh the efficiency gains from avoided taxes. However, a registration process involving a CAB assessment could also deliver some additional benefits from improved compliance.

Importantly, well-designed user charges could ensure adequate funding, as there is a risk that the effectiveness of the options identified could be undermined by inadequate funding for compliance and enforcement activities.

1 Background and introduction

Background

The Building Confidence Report (BCR) identified the following key concerns in relation to building products:[1]

- a high incidence of building products in the market that are not compliant with the standards set out in the NCC, resulting in inferior and sometimes dangerous products being used in the construction of buildings; and
- products being used in a non-compliant manner which can result in unacceptable risks to safety.

As part of the response to the BCR (specifically Recommendation 21), the National Building Product Assurance Framework (BPAF) was developed as a first step in addressing the building product safety issues identified in the BCR.

The aim of the BPAF is to improve building product compliance with the National Construction Code (NCC), which will reduce the risk associated with the use of inferior and sometimes dangerous products being used in the construction of buildings.

Ministers have endorsed the required deliverable of the BPAF to be: 'A nationally consistent and coordinated system of building product assurance and regulation to ensure that building products are manufactured, supplied and utilised in compliance and conformance with laws, codes and standards to deliver trustworthy buildings.'

To progress this issue, Weir Legal & Consulting (WLC) and the Centre for International Economics (CIE) were engaged to research, review and assess existing building control measures to address the issues associated with the manufacture, supply and use of non-conforming and non-compliant building products.

This report

The Terms of Reference require: development of high-level legislative or regulatory options, **including a cost benefit analysis** (CBA) of each option that could address the identified issues and/or gaps in the elements outlined above.

WLC has developed these high-level options. CIE's role is now to prepare a CBA of these options, as required in the Terms of Reference.

The remainder of this report is set out as follows:

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1 Shergold, P. and Weir, B. 2018, *Building Confidence: Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia*, February 2018, p. 36.

- Chapter 2 sets out our understanding of the options
- Chapter 3 specifies the options identified by the WLC team to be tested through CBA
- Chapter 4 discusses the approach to the CBA and identifies the potential benefits and costs
- Chapter 5 estimates the benefits and costs of the CBA options
- Chapter 6 discusses the proposed registration requirements
- Chapter 7 discusses the key findings.

2 Understanding the problem

Non-conforming and non-compliant building products

Despite a lack of comprehensive data, there is a widespread perception and growing anecdotal evidence of unacceptably high levels of non-compliance with the National Construction Code (NCC). The Building Confidence Report (BCR) identified the following key concerns in relation to building products:[2]

- a high incidence of building products in the market that are not compliant with the standards set out in the NCC, resulting in inferior and sometimes dangerous products being used in the construction of buildings; and
- products being used in a non-compliant manner which can result in unacceptable risks to safety.

The former is generally referred to as non-conforming products, while the latter as non-compliant products (see box 2.1 for formal definitions).

2.1 Non-conforming and non-compliant building products[3]

Although various definitions of non-conforming and non-complying building products have been used, the definitions in *Building Confidence Glossary* are as follows:

- **Non-conforming building product** is a building product that:
  - is claimed to be something it is not;
  - does not meet required standards for its intended use; or
  - is marked and supplied with the intent to deceive those who use it.
- **Non-complying building product** is a building product that is used in a situation where it does not comply with the legislative or regulatory requirements, such as the NCC, or with the approved documentation.

2 Shergold, P. and Weir, B. 2018, *Building Confidence: Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia*, February 2018, p. 36.

3 Australian Building Codes Board, 2021, *Building Confidence Glossary: Model guidance on BCR recommendation 22*, p. 11.

Examples of non-conforming and non-complying building products

Combustible cladding

The most common incidents of fire safety hazards have occurred with regards to the use of combustible cladding on a significant number of high-rise buildings (including commercial and apartment buildings). This has raised concerns over the safety of building products used in the Australian construction industry. The use of combustible cladding results in high rectification costs and exposes building users to safety risks. The need to take action on the unsafe use of such building products was apparent after the following incidents:

- a fire in the Lacrosse building in Melbourne's Docklands in which over 400 occupants were evacuated (see box 2.2)
- the Grenfell Tower fire in London, in which 72 residents lost their lives (box 2.3).

2.2 Lacrosse building fire

The Lacrosse building in Melbourne's Docklands was completed in 2012, with combustible aluminium composite cladding containing polyethylene. In November 2014, the Lacrosse building caught fire. Over 400 occupants were evacuated as the fire raced up 13 storeys via the external façade of the building within minutes of igniting.

A review by the Metropolitan Fire Brigade (MFB) found the building's cladding was not compliant with combustibility requirements, and the Buildings Appeal Board ordered the cladding be removed from Lacrosse in January 2017.

The damages claimed in respect of the fire totalled approximately $12 million.[4] Lacrosse apartment owners were given $5.7 million to cover property damages.[5]

Following, Lacrosse building incident in Melbourne the Victoria Building Authority (VBA) did an audit of external wall-cladding on high rise and public buildings.

An initial audit of 168 buildings in the City of Melbourne and inner surrounds, found half (51 per cent) were non-compliant .[6] The VBA audit also found:

- Levels of non-compliance was high but did not pose safety risks.
- There were many kinds of cladding material used in the buildings but whether they were 'fit-for-purpose' was not well-understood by building practitioners and surveyors.
- NCC requirements for external walls and building products used were inconsistently applied and not properly understood.

4 https://www.mcw.com.au/lacrosse-tower-fire-review-how-act-owners-corporations-could-be-affected/

5 https://www.abc.net.au/news/2019-02-28/lacrosse-apartment-owners-win-5.7-million-cladding-fire-damages/10857060

6 https://apo.org.au/sites/default/files/resource-files/2017-12/apo-nid121606.pdf

- No single category of practitioner, involved in design, approval, or construction, consistently bears responsibility for the non-compliant use of cladding.

A working group comprised of the VBA, City of Melbourne and MFB determined that none of the buildings posed a safety risk requiring immediate action. One building in the City of Port Phillip (the Harvest building), which was outside of the audit scope but identified during this process, required immediate remedial action.[7]

Therefore, flammable cladding had been on the radar of fire and planning authorities since the Lacrosse building fire in 2014. However, the 2017 Grenfell Tower Fire in London (Box 2.3) with the high toll of life losses renewed the concern of flammable cladding, leading several Australian state governments to set up taskforces to investigate the prevalence of flammable cladding and the associated fire risk.

2.3 Grenfell Tower Fire

A fire broke out in the 24-storey Grenfell Tower block of flats in North Kensington, West London. The fire was started due to a malfunctioning refrigerator freezer. The rapid spread of the fire on the building's façade was primarily attributed to the building's cladding. It resulted in 72 casualties.

Table 2.4 shows the estimated share of apartments across Australia that may have flammable cladding based on previous CIE calculations using published data from state-based audits of flammable cladding on Class 2 buildings and other buildings (Victoria, NSW, SA, WA plus preliminary notes from QLD).

2.4 Share of apartments that may have non-compliant flammable cladding

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Apartment buildings that may have non-compliant flammable cladding	163	385	144	22	42	0	7	29
Estimated number of apartment buildings built between 1997-2017	4701	2937	2147	196	538	6	124	402
Possible non-compliant buildings, share of total (also: possible non-compliant apartments, share of total)	3%	13%	7%	11%	8%	7%	6%	7%

Source: The CIE; NT Government. (CIE Building Confidence Report). Note more up-to-date information may be available.

Non-conforming products identified in the 2016 Senate inquiry

In 2015, the Senate Economics References Committee commenced an inquiry into non-conforming building products. The committee was granted a number of extensions (including when the inquiry lapsed when the 44th Parliament was dissolved) and was finally completed in 2018.

7 https://apo.org.au/sites/default/files/resource-files/2017-12/apo-nid121606.pdf

The Senate inquiry quoted Australian Industry Group report "The quest for a level playing field: The non-conforming building product dilemma", as stating that 45 per cent of companies in the industry reported to have non-conforming products in 2013.[8]

Examples of non-conformance and non-compliance from stakeholder submissions across industry reported to the Senate inquiry in 2016 include:

- Non-conforming bracing and strapping purchased were directly from building product suppliers where steel strapping and bracing used in timber framing were found to be substandard in galvanisation coating, significantly below standard, which compromised durability of product.
- There were non-conformance issues with access covers and drainage grates used on site:
  - products having incorrect load class identified on the grates;
  - use of defective grates (not-fit-for purpose)
  - no grate weight marking on products as required by workplace health and safety (WHS) regulations
- The regulator of the Water Efficiency Labelling Standards (WELS) scheme recorded increased supply of non-conforming showers that did not meet Australian standards coming in from overseas manufacturers. These instances of non-conformance included showers supplied without flow controllers, with substituted flow controllers or flow controllers supplied separately. These products used more water than their WELS label indicates.
- Imported non-conforming LVL that delaminated in the rain while construction was ongoing.

Additional examples identified in the stakeholder consultations

This analysis has conducted extensive stakeholder consultations. Some additional examples are identified in the consultations, including:

- imports of non-compliant steel mesh; and
- use of non-compliant windows for residential properties prone to storm/strong windows resulting in failure of product (even though product is conforming to NCC standards for its stated purpose).

Factors leading to non-conforming and non-complying building products

There use of non-conforming and non-complying building products appears to be occurring in:

- Lack of available accurate information to support product selection — this includes:
  - where product suppliers fail to provide the relevant information

8 https://www.sria.com.au/pdfs/REPORT_NCP_FINAL.pdf

  - instances where any information provided is not accurate, or in some cases deceptive.
- Product substitution — even when a compliant product has been selected (and certified) for an intended use, stakeholders also highlighted the prevalence of product substitution in the post-design phase. This is where products are substituted for cheaper products that may not be compliant in that use.

Some stakeholders noted that product supply issues arising from the COVID-19 pandemic has exacerbated the problem. Where products have not been available in a timely way, there have been instances of builders sourcing products that are non-compliant for the intended use. This issue could persist even when supply issues are resolved.

Lack of effective regulation of building products

Although there are a range of factors that contribute to the prevalence of non-compliant and non-conforming building products, a key underlying cause is a lack of effective regulation around building products.

Existing regulatory requirements in relation to building products

Unlike some other products (such as plumbing products, electrical appliances and gas appliances), there is no mandatory certification scheme for building products. There are, however, a range of existing regulatory requirements, which can be summarised as follows:

- NCC requirements — as set out in the WLC report, building regulatory schemes in all jurisdictions have mechanisms to require building products to comply and conform as follows:[9]
  - each jurisdiction adopts the NCC which requires 'evidence of suitability' for all products and references standards some of which include building product compliance matters;
  - in some jurisdictions designers and engineers are expressly required to produce designs that comply with the NCC, which includes requiring them to specify compliant and conforming products for use;
  - building approvals must not be issued unless the building surveyor is satisfied that proposed works will comply with the NCC which includes compliance with evidence of suitability and standards;
  - there are offences where building works are not carried out in accordance with the NCC, placing an obligation on builders to ensure compliance with evidence of suitability and relevant standards (although builders have successfully argued that where they have relied on advice from architects, engineers and building surveyors, they should be able to pass on liability when non-compliant products are installed by them).

9 Weir Legal & Consulting 2022, *Building Products Assurance Framework — Regulatory Options*, Draft V1, 18 October 2023, p. 23.

- Some aspects of Australian Consumer Law (ACL) would apply to building products, including: where there has been conduct that is misleading or deceptive or is likely to mislead or deceive; or where building products are sold through retail outlets.
  - However, more generally, building products may not be covered by the general consumer or product safety provisions under the ACL on the basis that they may not be a consumer good.
  - Furthermore, the Australian Competition and Consumer Commission (ACCC) argues that it does not have the capacity to regulate building products and other specialist products on the grounds that: it does not have: pre-market controls, the ability to licence or certify, specialist expertise, or relationships with stakeholders in the way that industry-specific regulators do.
- Chain of responsibility laws in some states — some states have implemented specific laws in relation to building products:
  - The Queensland Chain of responsibility laws have been functional since 2017 (see box 2.5 for a summary of the duties specified in the Queensland legislation).
  - A recent Bill amendment passed similar chain of responsibility laws in NSW, but it has not been implemented yet.

2.5 Duties in relation to building products — Queensland[10]

The QBCC Act specifies an overarching, **primary duty** for each person in the 'chain of responsibility' (i.e. the supply chain for any building product that could include: product designers, product manufacturers, product importers, product suppliers and product installers), to, *so far as is reasonably practicable*, ensure that the product is not a non-conforming building product for an intended use.

Other duties specified in the QBCC Act include the following:

- **Duties relating to required information accompanying a building product** — a person in the chain of responsibility has a duty to provide 'required information' to accompany a building product as it passes from them to the next person in the building product supply chain. Each person in the chain of responsibility also needs to conduct due diligence investigation on the 'required information' they receive.
  - The required information includes information on:
    - the suitability of the product for the intended use, including any particular circumstances or conditions;
    - instructions about how the product must be associated with a building to ensure that it is not a nonconforming building product for the intended use;
    - instructions about how the product must be used to ensure it is not a non-conforming building product for the intended use.
  - The required information can accompany the building product in a number of ways, including, but not limited to:
    - the inclusion of the required information affixed to the product, or on or in the packaging for the building product;
    - a website address, QR code or other means of linking to a website or other digital data repository where the required information is contained, affixed to the product, on or in the packaging;
    - providing the required information at the point of sale or supply to the next person in the chain of responsibility through printed material.
- **Duties on representations about building products** — essentially a person in the chain of responsibility must not make false or misleading claims about the use of a building product that would lead to the product being non-conforming if used in a way consistent with the claims being made.
- **Duty to report non-conforming building products** — any person in the chain of responsibility for a building product has a duty to report a non-conforming building product to the QBCC if the person becomes aware, or reasonably suspects, that the building product is non-conforming for an intended use.
- **Duty to report safety-related incidents or concerns** — if a person in the chain of responsibility becomes aware, or reasonably suspects, that a non-conforming building product has caused a death or serious injury or illness for any person, or an incident that exposes a person to a risk of serious injury or illness, they must notify the QBCC.

Whilst there is ongoing regulatory action and civil litigation in relation to non-compliant combustible cladding, manufacturers and suppliers of the non-compliant products were unable to be regulated by governments because their laws did not apply to the supply chain.[11]

Other mechanisms to address building product issues

Although some products have mandatory certification requirements (including: plumbing products, electrical equipment and gas appliances), there is no mandatory certification scheme for most building products. There are, however, several voluntary certification schemes, including the following:

- CodeMark is a voluntary third-party building product certification scheme administered by ABCB.
  - A CodeMark Certificate of Conformity is one way that product suppliers can demonstrate compliance with the NCC under the Evidence of suitability Handbook.[12]
  - As at September 2023, there were 229 building products certified under the CodeMark scheme.
- There are several industry-led certification schemes for several key products, including for: reinforcing and structural steel; glazing; timber and engineered wood products; waterproofing products and other products.

Limitations of current regulatory arrangements

Some of the issues identified in the BCR with regard to building products include the following:[13]

- Lack of awareness of current regulatory requirements — a recent study examining product selection processes noted that interviewees were not aware of specific guidelines available to assist in the process of ensuring products selected are compliant and conforming (including the ABCB Evidence of Suitability Handbook).[14]
- No compliance mechanism in most jurisdictions — the BCR notes that audits of cladding on high-rise buildings have raised questions about whether authorities have the necessary powers to require rectification, recall products or issue warnings about

10 Queensland Government Department of Housing and Public Works, Non-Conforming Building Products: Code of Practice, October 2017.

11 ABCB 2021, *Building product safety: National Building Product Assurance Framework – BCR recommendation 21*, Australian Building Codes Board, Canberra.

12 ABCB, 2021, Evidence of suitability, Handbook, p. 4.

13 Shergold and Weir (2018), op. cit.

14 Johnston, N. and Teys, M. 2023, *Investigating Building Product Selection and Information Transparency*, Strata Knowledge, 20 February 2023, p. 26.

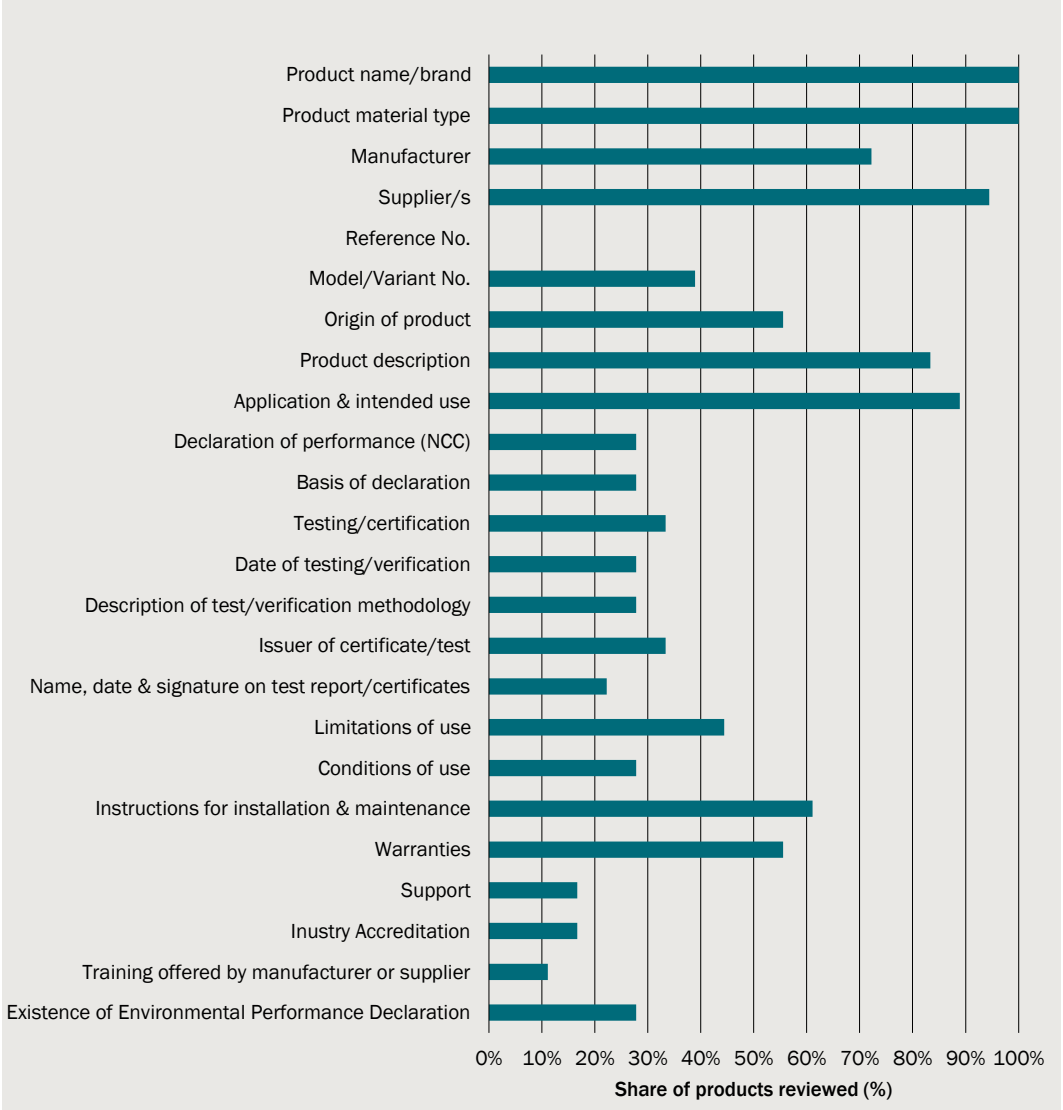
products.[15] This issue has largely been addressed in Queensland and now NSW, but not in other states and territories.

- There remains a lack of accurate relevant information available on building products:
  - A recent study reviewed manufacturer and supplier websites and found that only a relatively small number of manufacturers provided both in-depth technical information about its products and provided it in a manner that was easily accessible and readable (see chart 2.6 for a summary of the proportion of the 18 products reviewed that made the relevant information available). Detail and clarity were lacking on most websites reviewed.[16]
  - Some stakeholders noted the challenges for certifiers and other relevant stakeholders in verifying the information made available on a product.
- Voluntary certification schemes are unlikely to be fully effective where there are mismatched incentives across different stakeholders in the building process.
  - Where all stakeholders have an incentive to minimise defects, there may be an incentive to use certified products.
  - However, where incentives are not aligned, voluntary certification schemes are less likely to be effective in addressing issues associated with non-conforming and non-complying building products.
    - Builders may have an incentive to minimise costs and use cheaper products where available.
    - Developers may have limited incentive to minimise defects where they do not intend to maintain an ownership stake in the building (e.g. where the prevailing model is to sell apartments off the plan)

15 Shergold and Weir (2018), op. cit.

16 Johnston and Teys (2023), op. cit., p. 2.

2.6 Share of products reviewed that make key information readily available



Note: Based on a sample of 18 products, including*: 3 glass balustrades, 3 fire-rated plasterboard products; 3 steel drainage grates; 3 insulated electrical cables; 3 PVC pipes (plumbing); and 3 aluminium panels (cladding).*

Data source: Johnston, N. and Teys, M. Investigating Building Product Selection and Information Transparency, Strata Knowledge, 20 February 2023, p. 23.

Regulatory fragmentation across states and territories

The current scenario, where each state and territory implement its own regulations, is seen as complex and problematic, particularly for products that are sold across borders. Consultations with industry stakeholders identified inter-state harmonisation as imperative to streamline compliance efforts, emphasizing the benefits of federal-level standards in reducing errors, inventory costs, and labelling costs.

Queensland was noted for its well-regarded chain of responsibility law, which ensures that all parties involved in the supply chain, including manufacturers, importers, suppliers, and installers, are held accountable for ensuring compliance with relevant

standards and regulations. This law has been seen as a model for other states like NSW but has not been broadly applied across Australia.

Other underlying causes

Although ineffective regulation of building products is a key factor contributing to the prevalence of non-compliant and non-conforming building products, several of the other issues identified in the BCR are also likely to contribute, including the following:

- Building practitioners' insufficient understanding of the NCC, leads to non-compliance, poor documentation, and misinterpretation. This failure has been offered as one explanation for the prevalence of non-compliant cladding on buildings across Australia.
- Integrity/competence of building surveyors:
  - Some stakeholders noted the possibility that not all building surveyors may have sufficient knowledge to interrogate the data even if there is a Building Information Modelling (BIM) system in place or physical documentation.
  - Building surveyors look at the entire structure and not just the individual products; there is scope to miss details.

Potential consequences from non-conforming and non-compliant building products

Potential consequences of the use of non-conforming and non-compliant building products includes the following:

- Rectification costs including when the non-conforming product is identified:
  - during the construction phase (e.g. found by the certifier); or
  - further down the track in the building operation phase
- Poor safety outcomes — although poor safety outcomes in building are relatively uncommon in Australia; however, latent risks appear to be relatively prevalent. The Grenfell tower incident in London is an indicator of the potential risks associated with non-conforming building products
- Excessive time spent by certifiers and designers (and possibly the professionals involved in product selection) in obtaining the relevant information
- Costs and delays from lack of readily available information.

Estimating the size of the problem

Various studies have noted that, there is limited robust empirical evidence on the prevalence of non-conforming and non-complying building defects in Australia and the associated costs incurred.[17]

17 Johnson and Teys (2023), op. cit., p. 6.

As a high-level indicative estimate, the total costs of defects caused by inadequate regulation of building products could be in the order of **$658.8 million** per year (table 2.7). This is based on:

- previous CIE estimates of the total annual cost of building defects (in 2020 dollar terms) inflated to 2023 dollars using the relevant construction output measure of the producer price index (published by the ABS)
- an assumption that the contribution of inadequate regulation of building products? to these costs could be:
  - around 25 per cent for separate houses
  - around 20 per cent for apartment buildings and commercial buildings.

These percentages of contributions are assumed according to the relative importance of building product regulation to the prevalence of defects found in our previous survey for the high-level analysis of BCR recommendations, as well as taking consideration of inter-relationships among the underlying causes.

Further details are provided below.

2.7 Estimated defect-related costs attributable to building products

	Detached dwellings and townhouses (Class 1)	Apartment buildings (Class 2)	Commercial buildings (Class 3-9)	Total
	$ million	$ million	$ million	$ million
NSW	65.4	72.5	36.2	174.0
VIC	76.9	107.1	38.1	222.0
QLD	51.5	62.3	16.0	129.9
SA	9.8	13.6	6.5	29.9
WA	30.8	38.8	9.3	79.0
TAS	2.0	2.4	2.4	6.8
NT	1.4	1.7	1.2	4.2
ACT	4.4	5.4	3.1	12.9
Total	**242.2**	**303.8**	**112.8**	**658.8**

a

Note: in 2023 dollar

Source: CIE estimates.

The total cost of building defects

As part of our high-level regulatory impact analysis of the impacts of implementing the BCR recommendations, the CIE estimated that the total costs associated with building defects nationally could be around $$2.47 billion per year (table 2.8).[18] Rectification costs are the largest component for the total cost, (accounting for over three quarters of

18 CIE 2021, *Building Confidence Report: A case for intervention*, report for the Australian Building Codes Board, The Centre for International Economics.

the total cost). The other costs included in the calculations were time cost, loss of life and property damages.

2.8 Estimated cost of defects

	Detached dwellings and townhouses (Class 1)	Apartment buildings (Class 2)	Commercial buildings (Class 3-9)	Total
	$ million	$ million	$ million	$ million
NSW	193	308	151	652
VIC	227	455	159	841
QLD	152	265	67	484
SA	29	58	27	114
WA	91	165	39	295
TAS	6	10	10	26
NT	4	7	5	16
ACT	13	23	13	49
Total (2020 dollars)	**715**	**1 291**	**471**	**2 477**
Total (2023 dollars)	**969**[a]	**1 519**[b]	**564**[c]	**3 052**

[a] Inflated using the national house construction index of the producer price index published by the ABS (36 per cent increase since 2020). [B] Inflated using the national other residential construction index of the producer price index published by the ABS (18 per cent increase since 2020). [C] Inflated using the national non-residential building construction index of the producer price index published by the ABS (20 per cent increase since 2020).

Source: CIE, *Building Confidence Report: A case for intervention*, Prepared for the Australian Buildings Codes Board, July 2021 (including unpublished information).

These estimates were in 2020 dollar terms (although the report was published in 2021). We inflate these 2020 dollar estimates to 2023 dollar terms using the relevant output of the construction industries producer price index published by the ABS. In particular:

- the cost of defects of Class 1 dwellings is inflated using the national house construction index (36 per cent increase since 2020)
- the cost of defects for Class 2 dwellings is inflated using the national other residential construction index (18 per cent increase since 2020)
- the cost of defects for commercial buildings (Class 3-9 buildings) is inflated using the national non-residential building construction index (20 per cent increase since 2020).

Contribution of lack of effective regulation of building products

As identified in the BCR, a range of regulatory failings contribute to the prevalence of building defects in Australia. Inadequate regulation of building products is only part of the story.

Relative importance of building product regulation to the prevalence of defects

A CIE survey of building practitioners for our high-level analysis of the impacts of implementing the BCR recommendations provides an indicator of the relative importance of the lack of effective regulation of building products to the prevalence of

building defects across different building types, compared with various other regulatory issues.

Building practitioners were asked the extent (i.e. a large contribution; a moderate contribution; a small contribution or not at all) to which various underlying causes identified in the BCR (including: a lack of effective regulation of building products) contributed to defect issues. To get a numerical indicator of the relative importance of each underlying cause, we score the responses as shown in table 2.9.

2.9 Survey response scoring

Response	Score
Large contribution	3
Moderate contribution	2
Small contribution	1
Not at all (i.e. no contribution)	0

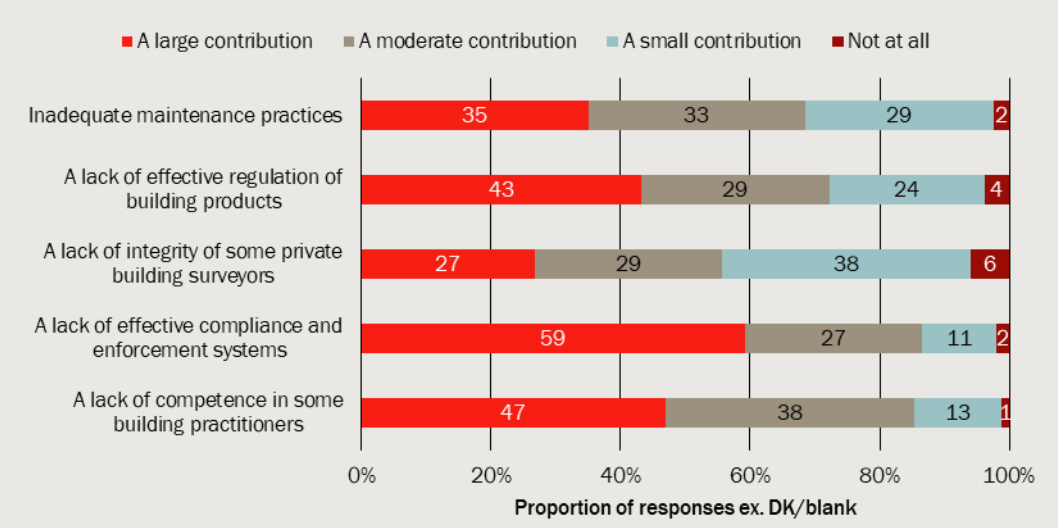
Source: CIE.

For separate houses (see chart 2.10):

- the average score for 'a lack of effective regulation of building products' was 2.1
- the average score across the 5 underlying causes was also 2.1.

If the defect problem in separate houses were to be attributed across the 5 underlying causes identified, this suggests it may be reasonable to attribute around 20 per cent of the defect problem to ineffective regulation of building products.

2.10 Contribution of issues to defects in separate houses excluding respondents perceiving few or almost no defects



Q/ Based on your opinion, please indicate the extent to which the following issues contribute to the prevalence of defects (due to non-compliance with the National Construction Code) in separate houses.

Base: Excludes respondents indicating the prevalence of defects in separate houses is 'Almost no buildings' or 'A few buildings'. Inadequate maintenance... n=488 (171 indicate a large contribution); A lack of effective regulation... n=491 (212 indicate a large contribution); A lack of integrity... n=481 (129 indicate a large contribution); A lack of effective... n=500 (296 indicate a large contribution); A lack of competence... n=497 (233 indicate a large contribution)

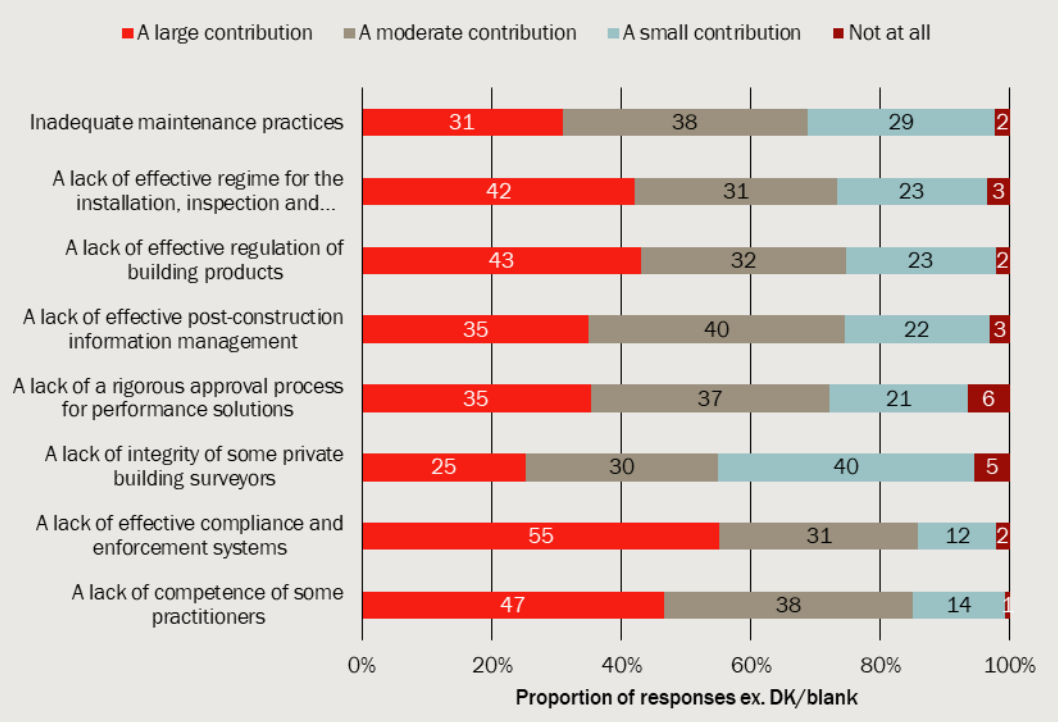
Data source: CIE survey of practitioners.

For apartment buildings (see chart 2.11):

- the average score for 'a lack of effective regulation of building products' was 2.2
- the average score across the 8 underlying causes was 2.1.

If the defect problem in apartment buildings were to be attributed across the 8 underlying causes identified, this would suggest that the contribution of ineffective regulation of building products may be slightly higher that its proportionate share (i.e. higher than 12.5 per cent).

2.11 Contribution of issues to defects in apartment buildings excluding respondents perceiving few or almost no defects



Q/ Based on your opinion, please indicate the extent to which the following issues contribute to the prevalence of defects (due to non-compliance with the National Construction Code) in apartment buildings.

Base: Excludes respondents indicating the prevalence of defects in apartment buildings is 'Almost no buildings' or 'A few buildings'. Inadequate maintenance... n=565 (175 indicate a large contribution); A lack of effective regime... n=550 (232 indicate a large contribution); A lack of effective regulation... n=580 (250 indicate a large contribution); A lack of effective post-construction... n=574 (201 indicate a large contribution); A lack of a rigorous... n=572 (202 indicate a large contribution); A lack of integrity... n=576 (146 indicate a large contribution); A lack of effective... n=587 (324 indicate a large contribution); A lack of competence... n=585 (273 indicate a large contribution)

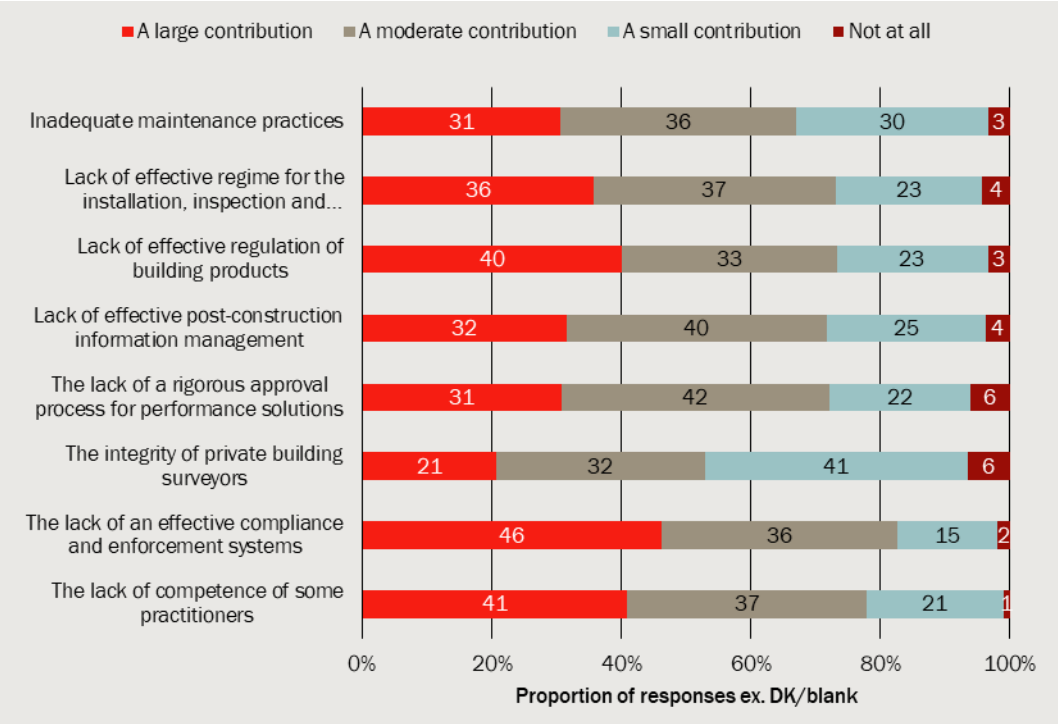
Data source: CIE survey of practitioners.

Similarly for commercial buildings (see chart 2.11):

- the average score for 'a lack of effective regulation of building products' was 2.1
- the average score across the 8 underlying causes was 2.0.

This suggests that the contribution of ineffective regulation of building products to the defect problem in commercial buildings may be slightly higher that its proportionate share (i.e. higher than 12.5 per cent).

2.12 Contribution of issues to defects in commercial buildings excluding respondents perceiving few or almost no defects



Q/ Based on your opinion, please indicate the extent to which the following issues contribute to the prevalence of defects (due to non-compliance with the National Construction Code) in commercial buildings

Base: Excludes respondents indicating the prevalence of defects in commercial buildings is 'Almost no buildings' or 'A few buildings'. Inadequate maintenance... n=495 (152 indicate a large contribution); A lack of effective regime... n=483 (173 indicate a large contribution); A lack of effective regulation... n=505 (203 indicate a large contribution); A lack of effective post-construction... n=500 (158 indicate a large contribution); A lack of a rigorous... n=501 (154 indicate a large contribution); A lack of integrity... n=495 (103 indicate a large contribution); A lack of an effective... n=508 (235 indicate a large contribution); A lack of competence... n=508 (208 indicate a large contribution)

Data source: CIE survey of practitioners.

These shares are lower bounds of contribution estimates because all of the issues identified in the BCR are inter-related, which we will discuss in the following sub-section.

Inter-relationships with other underlying causes

Another relevant factor when considering the contribution that the lack of effective regulation of building products makes to the prevalence of building defects is the inter-relationship with other underlying causes.

The contribution that the 'lack of effective regulation' makes to the problem of defects in buildings is equivalent to the potential benefits (in terms of reduced defect-related costs) to be gained from addressing that issue. The related question of how effective the specific proposed reforms are in addressing that problem is likely to be is addressed in chapter 5.

In this regard, the Building Confidence Report recommendations were designed as a holistic and coherent package,[19] due to the inter-relationships between the various issues

19 Shergold and Weir (2018), op. cit., p. 38.

identified. This implies that improvement in one area will help to improve the performance in other areas.

Some examples of the interaction between building product regulation and some of the other weaknesses identified in the BCR include the following.

- Addressing weaknesses in relation to building product regulation ensures that the right information is available to building design teams and building surveyors. However, selection of compliant products still depends on:
  - competent product selection from the design team; and/or
  - the competence and integrity of the building surveyor to certify that appropriate products have been selected.
- Better building product regulation would ensure that information on correct installation is available to builders, but this also requires builders to competently install the products.
- Some options would enable building surveyors to verify that the correct product has been installed. However, this would also require the building surveyor to be competent and act with integrity.

The extent to which ineffective building product regulations contributes to the prevalence of defects (and the associated costs) therefore depends on whether other BCR-related reforms are also implemented.

- If ineffective building product regulation was addressed in isolation, the impact may be less than the proportional share of the problem (as estimated above)
- If ineffective building product regulation was addressed together with the other reforms, the impact may be greater than the proportional share of the problem (as estimated above)

In general, most states and territories are moving towards implementing the BCR recommendations, implying that the latter scenario is more likely. That is, the potential benefits of building product reform may be greater than the proportional share of the problem estimated above.

Indicative estimate of the contribution of ineffective building product regulation

Based on the above discussion it seems reasonable to attribute the cost of defects to building product regulation as follows:

- around **25 per cent** of the costs associated with defects in separate houses and townhouses (Class 1 buildings) can be attributed to ineffective building product regulation
- around **20 per cent** of the costs associated with defects in apartment buildings (i.e. Class 2 buildings) and commercial buildings (i.e. Class 3-9 buildings) can be attributed to ineffective building product regulation.

Allocation across the different elements of the problems

As noted above, the overarching problem relating to building products has at least two distinct sub-problems, including:

- The lack of accurate information available to support product selection.
- Issues relating to whether the right products are installed (and installed properly) — this includes issues relating to product substitution.

The extent to which each of these elements contribute to the total problem is not known, with different industry stakeholders emphasising different aspects.

- Some industry stakeholders emphasised the lack of accurate information on products as the key issue (particularly in relation to waterproofing products).
- Others emphasised the importance of product substitution.

This issue is important because there are differences in the extent to which different regulatory options address the different elements of the problem (this is discussed further in chapters 4 and 5).

For the purposes of the analysis, we assume a **50:50** split across these different elements.

Time costs for building surveyors

Where product information is not made readily available by the product supplier, this can increase the time spent by various professionals involved in selecting and certifying compliant products. This includes:

- building designers and architects
- product specifiers
- building surveyors, including when:
  - certifying building plans (including whether the selected products are compliant in the intended uses)
  - issuing final compliance certificates (including certifying that the products actually installed are compliant).

In principle, the lack of readily available product information could impose additional time costs across multiple professionals involved in the product selection process. However, recent research suggests that architects and product specifiers often rely on building surveyors to ensure the products selected are compliant in the intended use. For the purposes of the CBA, we therefore assume that the additional time costs are mostly incurred by the building surveyor.

During the approval phase, building surveyors review project plans and specifications. This often involves extensive information seeking to ensure compliance with regulations.

Building surveyors play a critical role in ensuring that construction projects comply with relevant regulations and standards. The time required for their assessments can vary based on several factors, including the complexity of the project and the tools available.

Building surveyors often operate within strict timeframes, with a standard turnaround time of 24 hours for assessment and decision-making processes. This ensures that projects progress smoothly and in compliance with regulations.

The speed at which building surveyors can access relevant information can vary depending on the information system used. Some systems may be highly responsive, providing immediate access to necessary data, while others may be less sophisticated, requiring more time to retrieve information. This may be the case when more manual task is involved to confirm compliance. These may involve physical records and documentations that will need to be chased up or verified, whether all required information is available etc. Therefore, the assessment process can vary significantly in terms of duration. While some assessments may be completed quickly, others, particularly those involving complex projects or information seeking, may take weeks to finalize.[20]

Some estimates from consultations with building surveyors:

- A building project typically involves around 30,000 products, of which 1 per cent are critical products and 0.5 per cent do not have proper product information.
- Time to find relevant information for these products vary from 5 minutes to 2 hours, with an average of ¼ hours per product. With proper information as a result of the proposed reforms, it is assumed that the average assessment time will be reduced to 5 minutes from the existing ¼ hours.
- Building surveyors' average charge is $200-250 per hour, and may be up to $250-400 per hour in some places (noting some projects in Sydney CBD have inspection cost of $600 per hour). We therefore assume the average inspection cost is $300 per hour.

With the above information and assumptions, the cost of building surveyor's extra time due to lack of proper product information is estimated to be around $7,500 per project.

The total number of building projects is about 18 182 each year. This number only applies to big projects (i.e. commercial buildings and big apartment buildings – excluding individual houses). The total cost of building surveyors' time is thus $136 million each year.

The number of building projects has been growing at 0.88 per cent per annum on average, according to ABS data. If this trend continues, the number of projects will be 20 027 by 2034. Accordingly, the cost of building surveyors' time could be $150 million a year by 2034.

20 AIBS consultation

3 Options

Proposed options

The options for progressing BPAF, as identified by the WLC team, and some CBA perspectives on those options are summarised in table 3.1. There are several cases where the options identified by the WLC are different legal approaches to achieving key elements of the BPAF. However, from a CBA perspective, it is the changes themselves that matter, rather than the legal mechanism for achieving it.

3.1 Summary of options identified by WLC

BPAF recommendation	Identified options	CBA perspective
Enhancing enforcement (BPAF Recommendation 5A)	Options for harmonised regulatory schemes: ▪ **Option 1:** Develop model or mirror legislation ▪ **Option 2:** Agree on key elements to be included in state-based legislation	From a CBA perspective, the important aspect seems to be that there is some level of national consistency; the mechanism for achieving national consistency (or how a level of national consistency is achieved) is less important (although at the margin, there may be differences between these options in terms of: the level of national consistency achieved; and the cost and timing of the development/implementation of these options).
Enhancing enforcement (BPAF Recommendation 5A)	Governance models: ▪ **Option 3:** Building regulators (various approaches to national coordination ▪ **Option 4:** ACL or Building Regulators (various approaches to national coordination) ▪ **Option 5:** Rely on existing Australian Consumer Law	The governance models several options that relate to: ▪ How national coordination is achieved ▪ Who is the regulator. Although there are no longer a need for CBA to distinguish between different governance options, there may still be a role for a broader CBA of the nationally coordinated BPAF to include the potential costs associated with: ▪ the activities of a national coordination body ▪ state-based compliance and enforcement activities (and any other administrative activities).
Enhancing enforcement (BPAF Recommendation 5A)	Funding model to support enforcement activities: ▪ **Option 6:** Register responsible suppliers of designated products (sub-options consider what products are covered), including: – Fire safety systems – Reinforcing and structural steel	From a CBA perspective, user charges are largely a transfer between parties; the benefits to the regulators exactly outweighs the cost to industry (although there are also some economic efficiency implications from different funding sources).

BPAF recommendation	Identified options	CBA perspective
	– Structural timber – Glass – Waterproofing membranes ▪ **Option 7:** Register designated products (sub-options consider what products are covered), including same products as above.	
Data sharing methods and protocols between CABs and regulators (BPAF Recommendation 5B)	**Option 8:** Enhance information sharing through: ▪ Amendments to scheme rules ▪ Establish information sharing powers agreement(s); and/or ▪ Rely on investigative power to require information from CABs to support enforcement activities	This option does not need to be tested through CBA. ▪ The legal mechanism for achieving enhanced information sharing would not have a material impact, so the impacts likely to be similar across options. ▪ More generally: – the costs of enhanced information-sharing between CABs and regulators may not be significant – the benefits would depend on how the information is used, which is unknown.
Labelling options (BPAF Element 3 and BPAF recommendation 2A)	Labelling options: ▪ **Option 9:** – Must have website address on product/package – Must be global digital identifier ▪ **Option 10:** – Must have website address on product/package – Can be any product identifier ▪ **Option 11:** – Must have minimum information accessible via a website (address not required on product) – Must be global digital identifier ▪ **Option 12:** – Must have minimum information accessible via a website (address not required on product) – Can be any product identifier	There are likely to be material differences in the benefits and costs across these options. These options should therefore be tested through CBA.
Mechanism for achieving labelling options (BPAF Element 3 and BPAF recommendation 2A)	Labelling option achieved via: ▪ **Option 13:** Single standard applying to all products (unless they already have specific standard for labelling) ▪ **Option 14:** Product specific labelling requirements introduced in all standards referenced in the NCC	From a CBA perspective the legal mechanism is less important than the requirements themselves. That said, the cost of developing a single standard would presumably be cheaper than changing all standards referenced in the NCC.

BPAF recommendation	Identified options	CBA perspective
Minimum building product information (BPAF Element 3 and BPAF recommendation 2A)	National harmonisation through: ▪ **Option 15:** Prescribing the requirements in the NCC ▪ **Option 16:** Prescribing requirements in state and territory legislation	From a CBA perspective, there is no material difference between these options. The relevant costs are any additional costs associated with gathering/obtaining the relevant information, which are considered above.

Source: Weir Legal & Consulting, *Building Products Assurance Framework — Regulatory Options*, Draft V1 18 October 2023; CIE.

Scope of CBA

Several options canvas issues that, although important in the broader context of this project, are less relevant from a CBA perspective. This include issues relating to: the appropriate legal mechanism to achieve particular outcomes; the appropriate body to perform particular regulatory functions.

In many cases the resources required and the outcomes achieved are likely to be similar, regardless of the legal mechanism and/or body performing particular function. CBA is therefore unlikely to provide any meaningful insights on these questions.

There are, however, several options that will have materially different costs and benefits, where CBA can provide some useful insights.

CBA options

Based on the table above, the CBA will cover the following integrated elements:

- Common aspects across all options includes:
  - requirement that relevant information accompanies a product along the 'chain of responsibility'
  - mandatory requirement to report non-conforming building products
  - a regulator that:
    - investigates complaints/enquiries (i.e. reactive compliance and enforcement activities)
    - undertakes some proactive compliance and enforcement activities
    - has the power to enforce the regulations, including through issuing orders that: require a change in the way products are marketed, require that a product be withdrawn from sale; require that a product be recalled
- Various options for product identification and labelling requirements corresponding with Option 9-12 in the draft WLC report (see table . The different options are designated with a letter (Options A-D) to differentiate from the numbers used in WLC's report.

3.2 Product identifier and labelling requirements

	Any product identifier	Global digital identifier
Must have minimum information accessible via a website (address not required by product)	**Option 9:** ▪ Any product identifier ▪ Website (but not required on product or package)	**Option 11:** ▪ Global digital identifier ▪ Website (but not required on product or package)
Must have website address on product or package	**Option 10:** ▪ Any product identifier ▪ Website address on product or package	**Option 12:** ▪ Global digital identifier ▪ Website address on product or package

Source: WLC.

Registration requirements

The WLC report also proposes several options relating to a registration system for particular building products deemed to be 'high risk'. The options vary depending on:

- whether the 'responsible supplier' or the product is registered; and
- what products are registered — the high-risk products identified by WLC include:
  - fire safety systems,
  - steel,
  - timber,
  - glass and
  - water-proofing membranes.

The primary purpose of the registration requirements would be to provide a revenue stream to fund compliance and enforcement activities, although it would also provide a mechanism for regulators and supply chain participants to more readily identify when a product cannot be supplied or used and provide a clear process for excluding products where they are found to be non-conforming or unsafe.

Fees and charges effectively determine who bears the cost of the regulator's compliance and enforcement activities:

- where there is no cost recovery from users of a regulatory framework, these costs are borne by the government (through general taxation revenue)
- fees and charges pass these costs onto users of the regulatory system.

The option to generate a revenue source to fund compliance and enforcement activities originated from a (reasonable) concern that these activities would not be properly funded without user charges. However, this is inconsistent with how this issue is typically framed, including in various policy guidance documents (such as regulatory impact analysis guidance material and cost recovery guidelines).

Implicit in the RIS framework is consideration of appropriate resourcing for compliance and enforcement activities, which in-principle should be reflected in a CBA.

The question of who funds the compliance and enforcement activities is generally treated as a secondary question based on a principles-based assessment, rather than CBA. In particular, there are Australian Government Cost Recovery Guidelines[21] (we understand that some states and territories also have separate guidelines), which are essentially based on best practice principles set out in the Productivity Commission's (2001) *Inquiry into Cost Recovery by Government Agencies*.[22]

Consistent with cost recovery guidelines we therefore consider the case for user charges to funding compliance and enforcement activities as a separate question based on best practice principles.

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21 See: Australian Government Department of Finance, Australian Government Cost Recovery Guidelines, Resource Management Guide No. 304, July 2014 — Third edition, https://www.finance.gov.au/sites/default/files/2020-02/RMG-304%20Australian%20Government%20Cost%20Recovery%20Guidelines.pdf, accessed 31 October 2023.

22 See: Productivity Commission, Cost Recovery by Government Agencies, Inquiry Report No. 15, 16 August 2001, https://www.pc.gov.au/inquiries/completed/cost-recovery/report, accessed 31 October 2023.

4 Approach to impact analysis

CBA approach

Base case

For CBAs that are used to inform regulatory decisions, the base case typically reflects 'status quo' regulatory arrangements. In many cases, the base case may also incorporate relevant foreseeable developments. The base case used for the CBA assumes a continuation of current regulatory arrangements where:

- chain of responsibility laws operate in Queensland and are likely to operate shortly in NSW
- relevant laws do not operate in any other state or territory.

Under this base case, the CBA results can be interpreted as an assessment of whether the other states should pursue chain of responsibility laws (i.e. do the benefits of the chain of responsibility laws outweigh the costs).

CBA parameters

Key CBA parameters are as follows:

- Analysis period — the analysis period for the CBA is 10 years, assuming implementation commences in 2025
- Discount rate — we use a discount rate of 7 per cent in the central case scenario.

Impacts

The identified impacts of a similar scheme that has been implemented in New Zealand — Building Products Information Requirements — are summarised in box 1.

1 Impacts of New Zealand Building Products Information Requirements[23]

Benefits will accrue primarily to building product users – designers, builders and consumers – as well as building consent authorities, which use the information to inform building consents. These benefits include:

- avoided delays during the consent application process, for example, where an application is rejected or further information requested due to insufficient information about building products listed on the application
- avoided delays from failed inspections, such as where a building consent authority is not satisfied the correct product has been installed or considers that it has been incorrectly installed
- avoided additional inspection fees, where re-inspections are required to confirm identified issues have been corrected
- avoided cost of rework, such as where a non-conforming product is used, or where a product has not been properly installed or adequately maintained
- avoided search time for designers, engineers and builders, as the information they need about building product performance is more readily available.

The costs of the proposed regulations will primarily be borne on suppliers (manufacturers and importers) who will be required to:

- prepare the required information;
- include it with their products;
- make it available online.

Distributors and retailers will be required to ensure the information is included with each product they supply (but will not be required to verify the information provided). There will also be some compliance and enforcement costs for the regulator.

Costs

The cost of the identified BPAF options could include:

- the costs associated with gathering the relevant information (this would be the same across all options)
- the cost of making the relevant information accessible down the 'chain of responsibility'
- costs associated with product identifiers (which would vary under different options)
- product labelling costs (which would vary under different options)
- compliance and enforcement costs.

[23] New Zealand Ministry for Business, Innovation and Employment, *Regulatory Impact Statement: Building Product Information Requirements*, 12 October 2021, p. 5.

Costs for suppliers to gather the relevant information

The requirement for the supplier to gather the relevant product information is not new. As discussed above, it is a pre-existing requirement for the supplier to provide 'evidence of suitability' for an intended use.

That said, these existing requirements are not always complied with. Stronger compliance and enforcement mechanisms could, in principle, mean that some suppliers may incur the cost of additional testing. The cost of testing products on a range of characteristics in a NATA-accredited laboratory can be significant.

However, there is a case to exclude these costs from the main CBA on the following grounds:

- Some suppliers of poor-quality products that have not been tested may choose to leave the market, rather than incurring the testing costs; removing poor quality products from the market is essentially an objective of building product.
- Under the base case, there are already measures to improve compliance and enforcement in both NSW and Queensland. These states make up close to half of the total market.
  - To the extent that the market for building products is a national market, some suppliers may incur the cost of testing under the base case to sell into the NSW and Queensland markets.
  - There was some anecdotal evidence of a small number of suppliers choosing to avoid the Queensland market because of the chain of responsibility laws. However, with NSW recently passing similar legislation, it may be a less viable strategy for suppliers to avoid around half of the national market.

Furthermore, from a conceptual perspective, the purpose of the CBA is to assess the BPAF options. It is not assessing whether the existing testing requirements should apply. As the testing costs could be relatively significant, it is possible that the CBA result could be driven by a pre-existing requirement that is not under consideration.

For these reasons, we do not include testing costs in the main CBA results. The extent to which the inclusion of testing costs affects the CBA findings will, however, be tested as part of the scenario/sensitivity analysis.

Costs of making relevant information available down the supply chain

A key element of the reform options is that the relevant information on each building product would need to be made available to the next party in the 'chain of responsibility'.

The Queensland 'chain of responsibility' laws provides flexibility on how the required information is passed down the chain of responsibility, requiring only that the relevant information must, as far as reasonably practicable, accompany the building product to be received by the next person in the chain of responsibility.

In practice, a minimum requirement on suppliers (which could include manufacturers or importers) would be to make the information available via a website, with the website

address passed down the chain of responsibility. The costs could vary depending on the specific requirements.

In principle, this could mean that suppliers may need to bear the cost of creating and maintaining a website containing the relevant information. However, as most businesses would already have a website, the cost of making the information available (once the information has been obtained) is likely to be relatively trivial and has not been quantified.

All businesses down the chain of responsibility may need to understand their obligations and make (likely minor) changes to their processes to ensure compliance with these requirements.

Product identifiers

The WLC team proposed two options for how products are identified, including:

- Any product identifier — although there would be a requirement that products are identified, there would be no specific requirements on the type product identifier. The product identifier could therefore be the company's product identifier and as such, there would be no additional cost to the supplier.
- A global interoperable digital product identifier — in principle, requiring an interoperable digital identifier is a more stringent requirement, which would normally impose greater costs.

We understand that an interoperable digital identifiers could include:

- Bar-codes — the Global Trade Item Number (GTIN) system is based on bar-codes;
- Radio Frequency Identification (RFID) chips
- QR codes.

The costs vary across technologies in this category. For example: there appears to be costs associated with GTINs/bar-codes and RFID chips, while generating QR codes is essentially free.

Product labelling costs

The options here include:

- Labelling of product or packaging
- No specific labelling requirements (i.e. information must be made available via a website, but labelling not required).

There is presumably a one-off cost associated with:

- changing manufacturing process, so that relevant information is labelled on the product (where possible); and/or
- re-designing packaging.

Compliance and enforcement costs

The compliance and enforcement costs incurred by the regulator depends on the types of compliance and enforcement activities undertaken, which has not been specified. Based on the Queensland Building and Construction Commission's (QBCC's) experiences with administering the 'chain of responsibility' laws, this is likely to include:

- investigating and responding to complaints and enquiries
- some pro-active audits on 'families of products' (rather than individual products)
- compliance and enforcement actions, such as issuing enforceable orders where non-conforming products are identified
- activities aimed at educating stakeholders on how to comply with .

Benefits

The benefits of the proposed building products regulatory options would vary across options. A logic model (or program logic) is helpful to trace through the different aspects of the proposed options to the potential benefits. Table 4.1 traces through:

- the outputs (i.e. the products delivered from the regulatory change)
- the outcomes (i.e. the changes attributable to the regulatory outputs)
- the impacts/benefits (i.e. the increases in welfare associated with the outcomes).

4.1 Identifying the potential benefits — logic model

Output	Outcome	Impact/benefits
Improved availability of accurate product information	▪ Removes non-conforming products from the market ▪ Supports the selection of products that are compliant in the intended use ▪ Allows building surveyors to assess whether products are compliant in their intended use ▪ Encourages correct installation of building products (through provision of instructions)	▪ Reduced costs associated with building product-related defects
	▪ Building surveyor able to readily access relevant product information	▪ Reduced time costs associated with checking product selection ▪ Reduced holding costs associated with delays while building surveyor waits for relevant information
Link to product information labelled on product or packaging	▪ Builder more easily able to identify when the wrong product has been delivered ▪ Builders easily able to check installation instructions on site	▪ Reduced costs associated with building product-related defects

Output	Outcome	Impact/benefits
	▪ Building surveyor more easily able to verify whether the right product (as per the certified plan) has been installed (i.e. identify product substitution)	
Product labelled using interoperable digital product identifier	▪ Improved traceability (where product is scanned and recorded electronically)	▪ Reduced costs associated with products subsequently identified as unsafe ▪ Reduced costs/productivity improvements associated with recording product information

Source: CIE.

Based on the above analysis, the benefits could include the following (see table 4.2 for a summary of the potential benefits by option).

- Under **all options**, improved availability of accurate product information could:
  - reduce the costs from product-related defects
  - reduce the time spent by building surveyors in obtaining relevant product information
  - avoid delays in approvals, where building surveyors need to wait to receive the relevant information on building products.
- Where a link to the relevant information is labelled on the product or packaging (i.e. under Options 10 and 12), this could also contribute to reduced product-related defects by:
  - Ensuring that the right product has been delivered
  - Allowing the building surveyor to more easily identify instances of product substitution (i.e. ensure that a compliant product is installed consistent with the plan)
  - Allowing product installers to easily check the installation instructions on site.
- Where a digital identifier is used, this could reduce the costs associated with recording relevant information (to the extent that this occurs). This could be considered in the context of possible future requirement for digital building manuals.
- In terms of tracing specific products to be identified after installation (in the event of an issue relating to product suitability emerging), the new requirements would be helpful (and therefore reduce costs) where:
  - The details of the products used are recorded (likely only where an interoperable digital identifier is used); or
  - Where the relevant information is labelled on the product itself.

4.2 Potential impacts of different options

	Option 9	Option 10	Option 11	Option 12
Option details	▪ Any product identifier	▪ Any product identifier	▪ Interoperable global identifier	▪ Interoperable global identifier

	Option 9	Option 10	Option 11	Option 12
	▪ Information provided on website	▪ Labelling on product/packaging	▪ Information provided on website	▪ Labelling on product/packaging
Accurate information				
Reduced costs associated with product-related defects	✓	✓	✓	✓
Time savings for building surveyors	✓	✓	✓	✓
Reduced delays	✓	✓	✓	✓
Installing of compliant products				
Reduced costs associated with product-related defects		✓	✓	✓✓
Traceability				
Avoided costs associated with identifying non-compliant products post-construction			✓	✓
Avoided safety-related costs/risks from products identified as non-compliant post construction			✓	✓

Source: CIE

Availability of accurate information to support product selection

All of the proposed options would:

- place an obligation on all links in the supply chain to:
  - ensure that relevant information on a product is provided and is accurate
  - report non-conforming products
- provide a mechanism to address the issues that emerge.

Over time this would help to ensure that relevant accurate information readily available to:

- relevant building professionals (i.e. architects, building designers and engineers) to enable selection of suitable products
- building surveyors to verify that suitable products have been selected.

The benefits of improved availability of relevant and accurate information would include:

- time savings for building professionals to find the relevant information
- time savings for building surveyors to find the relevant information
- reduced defects that arise where the wrong product has been selected because:
  - the relevant information is not readily available
  - the information that is made available is not accurate.

It is likely that these benefits would be realised regardless of:

- the type of identifier
- labelling requirements.

Avoiding product substitution

Product substitution was identified as a key issue by some stakeholders. This occurs where a different product is installed to the one that has been selected and specified on the plan (and approved by the building surveyor). There are various ways this could occur, including:

- The builder deliberately substitutes the specified product for a (presumably cheaper) alternative that is not suitable for the intended use
- The supplier inadvertently delivers the wrong product by mistake.

The extent to which the proposed requirements address this problem will depend on the type of identifier and associated labelling requirements.

- Any product identifier should enable the builder to identify instances where the wrong product has been delivered.
- In principle, the product information passed along the chain of responsibility to the builder should enable the building surveyor to verify that the right products have been installed. However, without the products or packaging being labelled, it may not be possible for the building surveyor to verify that the information provided relates to the product that has been installed.
- Product labelling requirements could give the building surveyor more satisfaction that the product information relates to the product that has been installed, although that would also depend on the specific circumstances.
  - Labelling on the packaging is likely to only be effective where:
    - the information on the packaging has been retained; or
    - recorded electronically — this is not currently a requirement and is only likely to be feasible where this can occur electronically, such as through scanning a digital identifier.
  - Labelling the product itself would give the building surveyor even greater assurance that the right product has been installed. However, there are still some limitations of this approach:
    - It is not feasible to label all products.

- This would require the building surveyor to physically inspect the product (and the label) to verify that the correct one has been installed. This may not be possible, where the product has been covered at the time of the inspection.

- A key benefit of an interoperable digital product identifier (such as a GTIN) is that it would enable the products used in construction to be scanned and recorded electronically. This would enable the building surveyor to verify that the products installed are compliant and consistent with the plan in an efficient way. This is consistent with a recent study from New Zealand, which found that the main reason for an electronic traceability system is to reduce the use of non-conforming products through product substitution.[24]

Time saving for building surveyors

Adequate and accurate information for building products will significantly save time for building surveyors.

As discussed in chapter 2, the cost of extra time incurred by building surveyors due to lack of appropriate product information is in the order of $136 to $150 million per year at the national level.

These costs could be saved through better provision of accurate information. However, as Queensland already have relevant building product laws in place, the additional benefits will mostly accrue in other states and territories.

Avoided holding cost from delays

Building surveyors are unable to sign off and handover buildings before due diligence with regards to building compliance is completed. Request for information to verify building product conformity and/or compliance can take time if information is not recorded or easy to find. It is expected that most (90 per cent) requests for information are responded to within a month.[25] Complex cases can take weeks to validate conformance and/or compliance, delay in the handover process. Building surveyors also have to sign NDA with building product manufacturers during this process which can increase the time needed to confirm compliance.

The proposed reforms improving traceability is expected to result in building surveyors taking within 5 minutes to 2 hours per product to verify information instead of weeks.[26] This will result in the speeding up of the handing over process and final-users of the building can avoid the cost of lost productive revenue from its sale, rent or other use cases (holding cost).

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[24] Dodwell, D. Page, I. and Curtis, M. 2017, *Electronic traceability of New Zealand construction products: Feasibility and opportunities*, BRANZ Study Report SR365, Judgeford, New Zealand: BRANZ Ltd, p. 6.

[25] AIBS consultation

[26] AIBS consultation

The benefits of traceability

Several stakeholders referred to the benefits of 'traceability' when discussing the potential benefits of global digital identifiers in the context of building products. In this regard, demonstrating 'sustainability' credentials appears to be a key driver over recent years. The focus of this project is on BPAF and the BCR which do not refer to sustainability credentials, however, sustainability is a priority for all Australian Government therefore if the regulatory options proposed as part of this work can also provide a mechanism for increased transparency in relation to sustainability credentials for building products, this is likely to be of interest to the Senior Officers Group.

From that perspective, one possible benefit arising from enhanced capacity to trace building products post construction would be to reduce the cost of identifying buildings that have used products that have subsequently been found to non-compliant (similar to the flammable cladding issue).

In the case of flammable cladding significant costs — possibly hundreds of millions of dollars — were incurred identifying building where flammable cladding had been installed.

It is likely that a significant proportion of these costs could have been avoided if building product supply chains were digitalised and the information on the products installed scanned and recorded electronically.

However, these potential benefits are difficult to quantify as the frequency with which an issue similar to flammable cladding is not known and hard to predict.

Potential for productivity gains

In contrast to many other industries, the building industry has generally been slow to move into the digital age. This has contributed to relatively slow productivity growth, compared to other industries.[27]

Research commissioned by the NSW Building Commissioner found that the majority of class 2 builders (57 per cent) and designers (48 per cent) are in a basic stage of digitalisation, with relatively low proportion of businesses (29 per cent) having reached 'smart' capability equivalent to the use of building information models (BIM).[28]

However, some elements of the building industry are slowly digitising to improve efficiency and traceability. There have been various initiatives by various industry groups to create online tools for recording information and providing accreditation checks for products. The steel industry is internally undertaking this traceability project that not only encompasses supply chain material flow but quality certification, sustainability credentials, global warming potential data etc. However, these changes are not yet widely implemented.

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27 McKinsey Global Institute, Reinventing Construction: A Route to Higher Productivity, February 2017.

28 Construct NSW, Digitalisation of Construction, Industry Report on Digitalisation of Design and Construction of Class 2 Buildings in New South Wales, June 2021, p. V.

Interoperable digital product identifiers (such as a GTIN) are an enabling technology that could allow the building industry (and the businesses that supply the building industry) to digitalise business processes that achieve productivity gains.

Some stakeholders reported cost savings from digitalising manual processes; however, the magnitude of these cost savings are unclear.

Although there is limited direct evidence on the potential productivity benefits in the building industry, a New Zealand study estimated that greater digitalization of the construction industry could increase the construction industry's contribution to New Zealand's GDP by $120-$220 million per year.[29]

This was an illustrative estimate based on: a 20 per cent increase in the use of cloud-based business tools increasing multi-factor productivity in the construction industry by 2.5 per cent to 4.5 per cent per year. The relationship between the use of cloud-based digital tools and productivity was based on a European study using firm-level data.[30]

Impacts of product registration requirements

As set out in chapter 2, the primary purpose of the proposed product registration requirements is to fund compliance and enforcement activities from users of the regulatory system (i.e. product suppliers). Some key principles of cost recovery and the impacts of user charges based on best practice principles are outlined below.

The economics of cost recovery

In broad terms, the regulatory services provided by Government can be funded through either general taxation revenue or through some form of cost recovery arrangement. If well designed, cost recovery is an efficient way of funding regulatory services. Cost recovery can:

- improve efficiency — a fee or charge can:[31]
  - force economic agents to take into account the cost of operating the regulatory framework in making their economic decisions, leading to a more efficient allocation of resources
  - enhance independence from government and ensure a regulator has sufficient funding to efficiently administer the regulatory framework

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29 New Zealand Institute of Economic Research, *Digital data productivity: In the construction industry*, NZIER report to GS1, September 2020, p. i.

30 See: Gal, P. Nicoletti, G. Renault, T. Sorbe, S. and Timiliotis, C. Digitalisation and Productivity: In Search of the Holy Grail — Firm-Level Empirical Evidence from European Countries, OECD Economics Department Working Papers No. 1533, 6 February 2019.

31 Australian Government Department of Finance, *Australian Government Cost Recovery Guidelines*, Resource Management Guide No. 304, July 2014 – Third edition, p. 1.

- improve equity — a fee or charge can ensure that the users or beneficiaries of the regulatory framework pay for it, rather than the general taxpayers, who may not use or benefit from it
- reduce the reliance on general taxation revenue — all taxes have efficiency costs. Funding regulatory services through an efficient cost recovery arrangement can reduce the burden on general taxpayers and minimise the associated efficiency losses, and
- instil cost consciousness in regulatory agencies — cost recovery arrangements can improve the transparency of regulators and make them more accountable to users of the regulatory system.

On the other hand, poorly designed cost recovery arrangements can potentially:[32]

- reduce economic efficiency — where fees and charges are not closely linked to costs, they effectively act like a narrowly based tax on particular activities, which are typically less efficient than more broadly based general taxes
- impose unnecessarily high administration costs — some cost recovery arrangements are administratively cumbersome. In some circumstances, the administrative costs on government and business (or the community) may outweigh any efficiency gains, particularly if little revenue is collected through cost recovery, and/or
- compromise policy objectives — in some cases, a poorly designed cost recovery arrangement could compromise the achievement of government objectives.

Best practice cost recovery principles

In its *Inquiry into Cost Recovery by Government Agencies*, the Productivity Commission developed some general principles for applying cost recovery, including for regulatory activities. The Productivity Commission's work has formed the basis for subsequent specific guidelines developed by various governments. For example, the Commonwealth Government subsequently developed *Cost Recovery Guidelines* to be applied by agencies in developing pricing for products and services.[33] It sets out clear principles and a framework for cost recovery and identifies Government services that should not be subject to cost recovery.

Some key best practice principles for cost recovery based on the literature are as follows.

1 Cost recovery arrangements that are not justified on grounds of economic efficiency should not be undertaken solely to raise revenue for government activities.

2 Cost recovery should apply to specific activities and not to the agency as a whole. In general:
   - It is reasonable to apply cost recovery to regulatory activities.
   - Cost recovery should not be applied to activities relating to policy development and advice, such as to the Minister or Cabinet.

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32 Productivity Commission 2001, *Cost Recovery by Government Agencies,* Inquiry Report No. 15, p. XLIII.

33 https://www.finance.gov.au/resource-management/charging-framework/

3 In applying cost recovery to regulatory activities, as a general principle, the administrative costs of regulation should be recovered so that the price of each regulated product incorporates the cost of efficient regulation.

4 Cost recovery should not be implemented where:
   – it is not cost effective;
   – it would be inconsistent with policy objectives; or
   – it would unduly stifle competition and industry innovation.

5 Cost recovery charges should be linked as closely as possible to the costs of activities or products.
   – Fees-for-service reflecting efficient costs should be used wherever possible.
   – Where this is not possible, levies may be appropriate, but only where the basis of collection is closely linked to the costs involved.

The case for cost recovery

Based on the principles set out above, there is a clear in-principle case to fund compliance and enforcement activities associated with a BPAF through a cost recovery arrangement.

In terms of the type of charges, key best practice principle include the following:

- Fees and charges should be cost-reflective.
- The basis for any user charges should be linked as closely as possible to the cost drivers (i.e. the variable that drives the costs incurred by the regulator).

These key principles have the following implications.

- The types of products covered by the registration scheme should align with the products that would be subject to an audit/check (i.e. there should be no cross-subsidies).
- In terms of the types of proactive compliance and enforcement costs canvassed in the draft report, the key cost driver appears to be the number of products (rather than the number of suppliers); as more products are registered, there is potentially more checking/auditing activity required (assuming the proportion of products audited remains constant). This suggests that the registration process (and therefore the user charges) should apply to products.

Impacts

The impacts of the proposed product registration requirements would therefore include:

- Costs associated with register development and maintenance — a register would be a mandatory requirement.
- Costs associated with the registration process — the costs would depend on the registration process, which have not been defined.
   – Under most other certification schemes (including both mandatory and voluntary certification schemes), there is generally a process involving an assessment by a Conformity Assessment Body (CAB) before a product is registered.

  - On the other hand, if the register was primarily used for the purposes of raising revenue, an assessment from a CAB may not be necessary. Rather, a simple self-regulation (whereby product suppliers self-register products) may be sufficient to achieve the primary revenue raising purpose, while also minimising costs.
- Efficiency improvements from a more efficient funding arrangement — a cost recovery mechanism consistent with best practice principles outlined above could deliver improved economic efficiency in the following ways:
  - User charges to fund compliance and enforcement activities closely linked to the main cost drivers could have a direct efficiency impact, including by:
    - encouraging users of the regulatory system to consider the costs incurred by regulators in their decisions; and
    - ensuring the price of products includes the full cost of production (including costs incurred by regulators).
  - User charges would displace funding from general taxation. As all taxes have some efficiency costs, reducing the call on general tax revenue would also avoid the associated efficiency losses.
- Reduced product-related defects — a register for high-risk products could potentially improve compliance with existing evidence of suitability requirements under the NCC as follows.
  - A registration requirement could ensure that high-risk products available on the market are conforming products through an independent third-party assessment before a product is entered on the register (non-conforming can be excluded from the register).
  - A product register makes it easier for buyers to identify conforming products.

5 Estimating the costs and benefits of proposed options

Summary

Although there is limited good quality evidence, we have provided an indicative estimate of the potential impacts across most impact categories (see table 5.1). Based on the costs and benefits we were able to estimate:

- the benefits of all of the identified options to implement the BPAF could outweigh the costs
- Option 12 (involving mandatory product labelling and interoperable digital identifiers) appears to deliver the largest net benefits, followed by Option 10 (involving mandatory product labelling but no interoperable digital identifiers).

However, these estimates exclude a number of potential costs and benefits including:

- Product testing costs — although product testing is a pre-existing requirement (under the NCC evidence of suitability requirement), it is likely that some suppliers would need to undertake some product testing that they otherwise not have done through better compliance and enforcement processes
- Avoided delays — there are some cases where there is insufficient information available on a product for the building surveyor to certify the plans. In some cases this can delay certification and therefore increase holding costs. However, there is insufficient information to quantify these benefits.
- Potential benefits associated with:
  - improved traceability and
  - productivity gains.

5.1 Estimated impacts

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Benefits				
Avoided defect-related costs from improved product selection	747.4	747.4	747.4	747.4
Avoided defect-related costs from product substitution (product labelling)	0.0	692.9	0.0	692.9
Avoided defect-related costs from product substitution (interoperable digital identifier)	0.0	0.0	692.9	692.9
Building surveyor time savings	584.7	584.7	584.7	584.7
Total benefits	**1 332.2**	**2 025.1**	**2 025.1**	**2 717.9**
Costs				

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Compliance and enforcement costs	54.7	54.7	54.7	54.7
Website costs	75.4	75.4	75.4	75.4
Product identifier costs	0.0	0.0	142.8	142.8
Labelling costs	0.0	16.3	0.0	16.3
Total costs	**130.1**	**146.4**	**272.9**	**289.2**
Net impact	**1 202.1**	**1 878.6**	**1 752.2**	**2 428.8**

Note: Costs and benefits presented in net present value terms over 10 years, using a discount rate of 7 per cent.
Source: CIE estimates.

Estimating the costs

The cost information was primarily collated through CIE consultations with industry stakeholders across different building product industries. In seeking a high-level analysis, we use average or ballpark estimates, along with some assumptions, to arrive at aggregate results, whilst in reality costs are complicated and varying with the nature and intended applications of the products. As a result, costs estimated in this section are primarily indicative.

There are four types of costs of interest, including:

- Cost of globally unique identification – using GTIN of GS1 Australia
- Cost of setting up and maintaining websites
- Cost of labelling
- Cost of testing

Using websites, product labelling and testing are common practices in the industry, and majority of manufacturers and suppliers have already implemented these practices. In such cases, we envisage scenarios of some likely changes that target at particular group of manufacturers or suppliers – for example, entrants or small businesses – and discuss the indicative size of costs associated with the proposed changes. Consequently, we only account for cost of identification in the overall impact analysis.

Table 5.2 summarises costs associated with identification, websites, labelling and testing over a 10-year evaluation period, assuming the proposed changes take place in 2025. One-off cost is the non-recurring fixed investments made by businesses, including GTIN membership joining fees, website design and development, and testing costs. Annual costs comprise expenses incurred every year for the materials and services used by businesses, including GTIN annual fees, website maintenance, materials and maintenance services for product labelling, and re-testing as needed.

5.2 Summary of costs

Cost item	Estimated cost
	$ million
Identification (GTIN)	142.8

Cost item	Estimated cost
	$ million
Website	75.4
Labelling	16.3
Re-Testing	350.7

Note: The values are presented in prevent value for a 10-year evaluation period.

Source: CIE.

Number of products

Estimating the number of manufacturers and suppliers

Triangulating the data from ABS Input-Output tables and the ABS Business Longitudinal Analysis Data Environment (BLADE), we identified the 3-digit Australian and New Zealand Standard Industry Classification (ANZSIC) industries – including manufacturing and trade industries – that supply to construction activities (table5.3). Note that businesses in relevant wholesale and retail trade industries are counted only if they are importers because the supply chains of the imported products begin with them.

5.3 ANZSIC industries supplying construction materials

ANZSIC industry descriptor	ANZSIC code
Log Sawmilling and Timber Dressing	141
Other Wood Product Manufacturing	149
Pulp, Paper and Paperboard Manufacturing	151
Converted Paper Product Manufacturing	152
Petroleum and Coal Product Manufacturing	170
Basic Chemical Manufacturing	181
Basic Polymer Manufacturing	182
Other Basic Chemical Product Manufacturing	189
Polymer Product Manufacturing	191
Natural Rubber Product Manufacturing	192
Glass and Glass Product Manufacturing	201
Ceramic Product Manufacturing	202
Cement, Lime, Plaster and Concrete Product Manufacturing	203
Other Non-Metallic Mineral Product Manufacturing	209
Basic Ferrous Metal Manufacturing	211
Basic Ferrous Metal Product Manufacturing	212
Basic Non-Ferrous Metal Manufacturing	213
Basic Non-Ferrous Metal Product Manufacturing	214
Iron and Steel Forging	221
Structural Metal Product Manufacturing	222
Metal Container Manufacturing	223
Sheet Metal Product Manufacturing (except Metal Structural and Container Products)	224

ANZSIC industry descriptor	ANZSIC code
Other Fabricated Metal Product Manufacturing	229
Electrical Equipment Manufacturing	243
Domestic Appliance Manufacturing	244
Pump, Compressor, Heating and Ventilation Equipment Manufacturing	245
Specialised Machinery and Equipment Manufacturing	246
Other Machinery and Equipment Manufacturing	249
Furniture Manufacturing	251
Other Manufacturing	259
Mineral, Metal and Chemical Wholesaling	332
Timber and Hardware Goods Wholesaling	333
Specialised Industrial Machinery and Equipment Wholesaling	341
Other Machinery and Equipment Wholesaling	349
Furniture, Floor Covering and Other Goods Wholesaling	373
Furniture, Floor Coverings, Houseware and Textile Goods Retailing	421
Electrical and Electronic Goods Retailing	422
Hardware, Building and Garden Supplies Retailing	423

Source: CIE based on ABS, 'Count of businesses in ANZSIC 2006', in *Business Longitudinal Analysis Data Environment*, 2020; and ABS, 'Table 2 Input by industry and final use category and Australian production and imports by product group', in *Australian National Accounts: Input-Output Tables*, 2020-21 financial year, 2023.

Not all businesses in the selected industries in the table 5.3 supply to construction activities. Without data availability to detailed business classifications, we estimate the percentage of businesses supplying building products by referring the proportion of production used in construction activities in total supply from the ABS Input-Out tables (table 5.4). For businesses in the relevant trade industries, we assume the percentages to be the same as those of the manufacturers in the same product category.

5.4 Percentage of production used in construction activities

ABS Input-Output table industry	Mapping to ANZSIC codes	%
Structural Metal Product Manufacturing	222	55.0
Specialised and other Machinery and Equipment Manufacturing	245, 246, 249	1.7
Sawmill Product Manufacturing	141	43.7
Pulp, Paper and Paperboard Manufacturing	151	3.0
Polymer Product Manufacturing	191	29.1
Plaster and Concrete Product Manufacturing	203	95.1
Petroleum and Coal Product Manufacturing	170	7.5
Paper Stationery and Other Converted Paper Product Manufacturing	152	5.2
Other Wood Product Manufacturing	149	80.7
Other Non-Metallic Mineral Product Manufacturing	209	62.1
Other Manufactured Products	259	0.9
Other Fabricated Metal Product manufacturing	229	27.0

ABS Input-Output table industry	Mapping to ANZSIC codes	%
Natural Rubber Product Manufacturing	192	5.1
Metal Containers and Other Sheet Metal Product manufacturing	223, 224	18.7
Iron and Steel Manufacturing	211, 212	38.0
Glass and Glass Product Manufacturing	201	11.1
Furniture Manufacturing	251	7.2
Forged Iron and Steel Product Manufacturing	221	6.5
Electrical Equipment Manufacturing	243	33.4
Domestic Appliance Manufacturing	244	14.4
Ceramic Product Manufacturing	202	69.8
Basic Non-Ferrous Metal Manufacturing	213, 214	0.4
Basic Chemical Manufacturing	181, 182, 183, 189	13.6

Source: CIE based on ABS, 'Table 2 Input by industry and final use category and Australian production and imports by product group', in *Australian National Accounts: Input-Output Tables*, 2020-21 financial year, 2023.

After adjustment for business exit and entry per year,[34] we estimated the number of suppliers of building products to be 21,664 in 2024 (table 5.6).

5.5 Industry breakdown of businesses supplying building products, 2024

ANZSIC industry descriptor	Businesses
	No.
Log Sawmilling and Timber Dressing	501
Other Wood Product Manufacturing	5,114
Pulp, Paper and Paperboard Manufacturing	4
Converted Paper Product Manufacturing	34
Petroleum and Coal Product Manufacturing	25
Basic Chemical Manufacturing	40
Basic Polymer Manufacturing	45
Other Basic Chemical Product Manufacturing	27
Polymer Product Manufacturing	999
Natural Rubber Product Manufacturing	9
Ceramic Product Manufacturing	441
Glass and Glass Product Manufacturing	81
Cement, Lime, Plaster and Concrete Product Manufacturing	1,365
Other Non-Metallic Mineral Product Manufacturing	1,040
Basic Ferrous Metal Manufacturing	489

[34] According to ABS, from 2019 to 2023, the average annual entry rate and exit rate are 12.4 per cent and 11.0 per cent of existing businesses in last year, respectively, for businesses in manufacturing. ABS, 'Table 1 Businesses by Industry Division, June 2019 – June 2023', in *Counts of Australian Businesses, including Entries and Exits*, 2023, https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release, accessed 4 March 2024.

ANZSIC industry descriptor	Businesses
Basic Ferrous Metal Product Manufacturing	155
Basic Non-Ferrous Metal Manufacturing	1
Basic Non-Ferrous Metal Product Manufacturing	1
Structural Metal Product Manufacturing	3,921
Metal Container Manufacturing	390
Iron and Steel Forging	10
Sheet Metal Product Manufacturing (except Metal Structural and Container Products)	245
Other Fabricated Metal Product Manufacturing	1,937
Electrical Equipment Manufacturing	538
Domestic Appliance Manufacturing	63
Pump, Compressor, Heating and Ventilation Equipment Manufacturing	11
Specialised Machinery and Equipment Manufacturing	75
Other Machinery and Equipment Manufacturing	25
Furniture Manufacturing	413
Other Manufacturing	47
Mineral, Metal and Chemical Wholesaling	286
Timber and Hardware Goods Wholesaling	2,039
Specialised Industrial Machinery and Equipment Wholesaling	31
Other Machinery and Equipment Wholesaling	91
Furniture, Floor Covering and Other Goods Wholesaling	368
Furniture, Floor Coverings, Houseware and Textile Goods Retailing	117
Electrical and Electronic Goods Retailing	448
Hardware, Building and Garden Supplies Retailing	235
Total	**21,664**

Source: CIE.

Estimating the number of building products

In light of the fee schedules of GTIN from GS1 Australia, we assume the average number of stock-keeping units (SKUs) for businesses by annual turnover. The SKU is an in internal unique product ID within a business that encapsulates all attributes to an item variant for distinguishing it from other variants such that one colour or one set of dimension specifications has one SKU. By assuming one product has, on average, 10 SKUs,[35] we estimate the total number of building products at 700,032 (tables 5.6 and 5.7). This estimate is higher than the upper estimate of building products (totalled 600,000 building products) in the New Zealand. [36]

[35] It is in accordance with information provided by industry stakeholders in consultations.

[36] Minister for Building and Construction, *Regulatory Impact Statement: Building Product Information Requirements,* 2021, p.6, https://www.treasury.govt.nz/sites/default/files/2021-12/ria-mbie-bpi-oct21.pdf, accessed 6 March 2024.

5.6 Estimating the number of building products, 2024

Annual turnover range	Average SKUs per supplier [b]	The number of supplier
$	No.	No.
1 to 49,999	5	2,045
50,000 to 74,999	8	1,890
75,000 to 199,999	55	4,656
200,000 to 999,999	150	4,944
1 million to 2 million	300	3,529
2 million to 5 million	500	2,250
5 million to 10 million	1,000	1,054
10 million to 50 million	2,000	1,004
> 50 million	2,500	292
Total number of suppliers		**21,664**
Total number of SKUs		**7,000,319**
Number of building products [a]		**700,032**

[a] According to consultations with industry stakeholders, we assume that 10 SKUs, on average, can be assigned to one building product. As a result, the number of building products is estimated by the number of SKUs divided by 10.

[b] It is assumed by referring to the number of barcodes by size of business specified in the fee schedule of GTIN, as well as estimated number of SKUs of products in some representative manufacturers and suppliers.

Source: CIE based on assumptions and GS1 Australia, 2023 - 24 *GS1 Australia Membership Fee Schedule*, July 2023, https://assets.ctfassets.net/9uypwcnuzbqi/7p9duf3lzN69rnRPQUFsQp/8d4e0a2f360f292402b98b9fd4de09c6/GS1au-fees-individual-barcode-numbers-and-full-membership.pdf, accessed 4 March 2024.

5.7 Industry breakdown of building products, 2024

ANZSIC industry descriptor	Building products
	No.
Log Sawmilling and Timber Dressing	15,749
Other Wood Product Manufacturing	120,621
Pulp, Paper and Paperboard Manufacturing	351
Converted Paper Product Manufacturing	1,481
Petroleum and Coal Product Manufacturing	1,223
Basic Chemical Manufacturing	2,085
Basic Polymer Manufacturing	2,035
Other Basic Chemical Product Manufacturing	1,445
Polymer Product Manufacturing	37,601
Natural Rubber Product Manufacturing	396
Ceramic Product Manufacturing	10,933
Glass and Glass Product Manufacturing	2,044
Cement, Lime, Plaster and Concrete Product Manufacturing	57,548
Other Non-Metallic Mineral Product Manufacturing	22,026
Basic Ferrous Metal Manufacturing	18,049
Basic Ferrous Metal Product Manufacturing	6,121
Basic Non-Ferrous Metal Manufacturing	301

ANZSIC industry descriptor	Building products
Basic Non-Ferrous Metal Product Manufacturing	301
Structural Metal Product Manufacturing	113,223
Metal Container Manufacturing	6,700
Iron and Steel Forging	387
Sheet Metal Product Manufacturing (except Metal Structural and Container Products)	5,999
Other Fabricated Metal Product Manufacturing	39,541
Electrical Equipment Manufacturing	19,451
Domestic Appliance Manufacturing	2,005
Pump, Compressor, Heating and Ventilation Equipment Manufacturing	372
Specialised Machinery and Equipment Manufacturing	2,232
Other Machinery and Equipment Manufacturing	934
Furniture Manufacturing	7,617
Other Manufacturing	739
Mineral, Metal and Chemical Wholesaling	21,329
Timber and Hardware Goods Wholesaling	117,682
Specialised Industrial Machinery and Equipment Wholesaling	1,936
Other Machinery and Equipment Wholesaling	5,576
Furniture, Floor Covering and Other Goods Wholesaling	15,871
Furniture, Floor Coverings, Houseware and Textile Goods Retailing	4,453
Electrical and Electronic Goods Retailing	22,668
Hardware, Building and Garden Supplies Retailing	11,007
Total	**700,032**

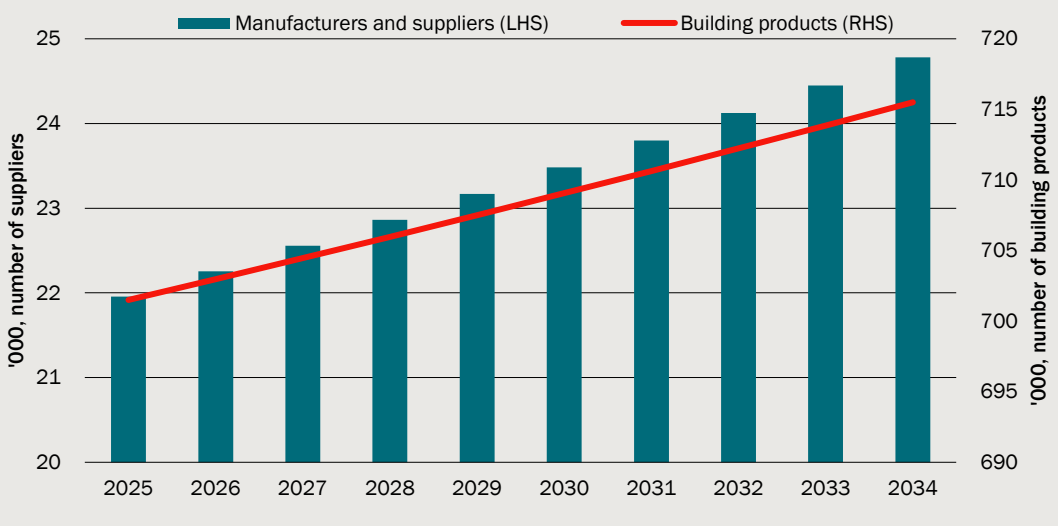
Source: CIE.

In projecting the number of suppliers and building products from 2025 to 2034, we further assume that:

- the future annual rates of business entry and exit remain unchanged as the annual average rates between 2019 and 2023,
- new building products developed by incumbents is assumed to be 0.5 per cent of the stock of existing products of last year, and
- the obsolete products removed by incumbents is also assumed to be 0.5 per cent of the stock of existing products of last year.

By 2034, the total number of suppliers is expected to be 24,780, and the total number of building products is expected to be 715,500 (chart 5.8). The compound annual growth rates over 10 years are 1.4 per cent and 0.2 per cent for businesses supplying building products and for building products, respectively.

5.8 Projection of the number of suppliers and building products, 2024-2034



Data source: CIE.

Website costs

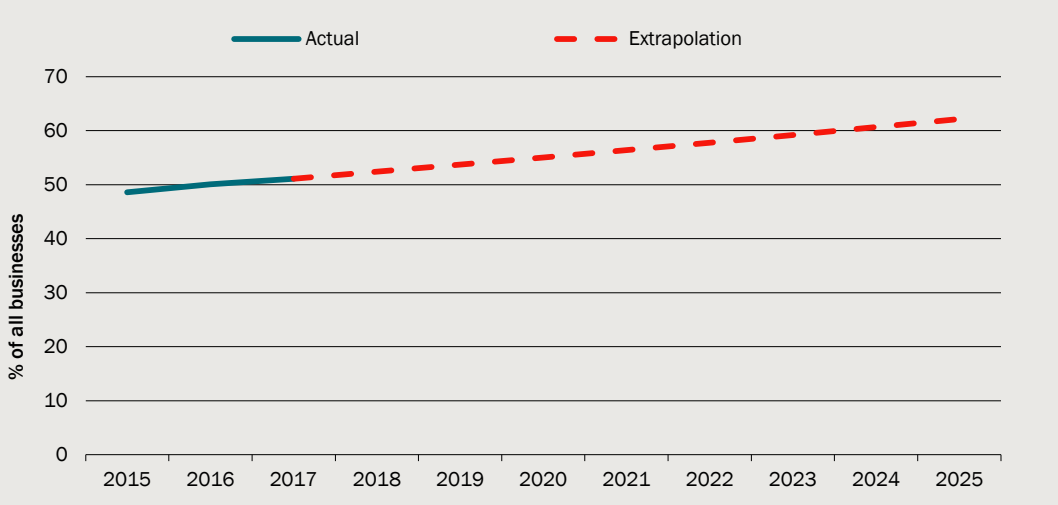
Under all of the proposed options, product suppliers would be required to make the relevant product information available on a website. Note that this goes beyond the pre-existing requirements in Queensland, which gives suppliers flexibility in how the information is passed down the chain of responsibility.

Many, but not all, businesses would already have a website. According to ABS, about 51.1 per cent of all Australian businesses had web presence, and 65.8 per cent of Australian manufacturers had web presence in 2016-17 (the latest data available).[37]

Based on the 3 data points available, the proportion of Australian businesses with a website was increasing over time, by around 1.5 percentage points per year. If this trend continues, the proportion would be around 62.2 per cent by 2025 (the assumed implementation date) (see chart 5.9).

[37] ABS, 'Business use of information technology by industry', in *Summary of IT Use and Innovation in Australian Business, 2016-17 financial year*, 2018, https://www.abs.gov.au/statistics/industry/technology-and-innovation/summary-it-use-and-innovation-australian-business/latest-release#data-downloads, accessed 7 March 2024.

5.9 Percentage of Australian businesses with websites



Data source: CIE based on ABS, 'Business use of information technology by industry', in *Summary of IT Use and Innovation in Australian Business, 2016-17 financial year*, 2018.

Website costs for business

Under all options, suppliers would need to have a website to publish the relevant information. The cost information of design and development and maintenance for a business is collated by size of business in the table 5.10. In addition, hourly rate for a web designer is about $54 (in 2023 dollars) based on ABS 2021 Census employment data for an internet service provider.[38]

5.10 Costs of design and maintenance for a website

Annual turnover	Setup cost	Annual maintenance
$	$	$/ year
1 to 49,999	4,000	1,600
50,000 to 74,999	4,000	1,600
75,000 to 199,999	4,000	1,600
200,000 to 999,999	7,500	4,050
1 million to 2 million	7,500	4,050
2 million to 5 million	16,250	6,500
5 million to 10 million	16,250	6,500
10 million to 50 million	30,000	13,135
> 50 million	30,000	13,135

Source: J Edgley, 'How much does a website cost in Australia?', in amplified marketing, 2023, https://www.amplifiedmarketing.com.au/blog/website-cost-australia/, accessed 5 March 2024. Emarket Experts, 'How Much Does a Website Cost in Australia?', in *eMarket Experts*, 2023, https://www.emarketexperts.com.au/how-much-does-a-website-cost-in-australia/, accessed 5 March 2024.

38 ABS, 'Employment and Income - counting person,15 years and over', in ABS 2021 Census Data Table Builder, 2024.

A scenario of proposed requirement on online information of building products

We envisage a scenario where the proposed change on web presence of building products will require:

- businesses without web presence to set up and maintain websites that provide information of all products, and
- businesses with web presence maintain their current web pages on regular basis to ensure all product information is updated.

In this scenario, we assume that:

- the proposed change comes into effect in 2025.
- businesses with websites – 62.2 per cent of all businesses (chart 5.9)
  - 10 per cent of these businesses currently do not present updated product information on their website and thus will be affected by the proposed change. It is assumed that they will spend 1 hour on updating information for each of current products in 2025 and for one new product the following years. Hourly rate for a designer to update information is $54.
  - the remaining businesses will not be affected.
- businesses without websites – 38.8 per cent of all businesses – will be affected by this change and thus need to
  - set up websites with current product information, and
  - update information for new products as needed.
- Set up costs vary in size of businesses. A Business without a website is assumed to pay for creating a website in accordance with its size in the table 5.10.
- the new products in this scenario only consider the new products developed by the incumbents.
- no cost is incurred to deleting out-of-date webpages about obsolete products.

The overall cost incurred in the first year of implementation is significant, with $72.5 million of setup costs for businesses currently without websites, and about $2.4 million of update costs for businesses with websites but not updating information (table 5.11). Note that there are no update costs for businesses without websites in this year as they are assumed to be included in the setup costs, but these businesses will need to pay update costs in following years.

5.11 Estimating costs of online information presence in 2025

Item	Unit	Value
The number of all businesses	No. of businesses	21,954
The percentage of businesses with websites	%	62.2
The percentage of businesses without websites	%	38.8
The percentage of businesses with websites but not updating information	%	10
The number of businesses without websites	No. of businesses	8,307
The number of businesses with websites but not proper product information	No. of businesses	1,365

Item	Unit	Value
The number of new products developed by the businesses with websites but not updating information	No. of products	212
Total number of affected businesses	**No. of businesses**	**9,672**
Cost per businesses to set up websites	$/ business	Table 5.10
Cost per products to be updated	$/hour/ business	54
Total set up cost for businesses without websites	**$**	**72,526,146**
Total update cost for business without websites a	**$**	**0**
Total update cost for businesses with websites but not updating information	**$**	**2,369,259**
Total cost	**$**	**74,895,405**

[a] it is assumed to be incorporated in the set-up cost in 2025. In the following years, there will incur update cost of these businesses.

Note: all costs are presented in 2023 dollars.

Source:

From 2026 onwards, costs will be solely for update costs incurred to the affected businesses ($83,934 per year, including $ 72,087 for businesses without websites and $ 11,846 for businesses with websites but not updating).

Over the 10-year evaluation period starting from 2025, the total cost incurred to businesses currently without websites is estimated at $ 73.0 million in present value terms (with the real social discount factor of 7 per cent). In practice, setting up websites for these businesses serve multiple purposes including presenting production information online in response to the proposed change, and thereby this estimate reflects the upper bound of the cost for requiring online product information to these businesses.

For businesses with websites but not currently updating information, the total cost is estimated at $ 2.4 million in present value terms. The combined cost totalled $ 75.4 million.

Product identifier costs

Globally unique product identification codes are considered pivotal in nationally consistent building product traceability and identification.[39] The Global Trade Item Number (GTIN) was one of the suggested standards of globally unique production identification codes based on International Organization for Standardization (ISO)/ International Electrotechnical Commission (IEC) accredited product identification standards. Alternatively, radio-frequency identification (RFID) tags and QR codes are also considered suitable identification standards that facility traceability.

This section is focused on estimating the cost of mandating GTIN as one of the standardised identifiers because:

- GTIN is designed to provide accurate and unique product information which is the fundamental element of product traceability throughout the supply chain.

[39] ABCB, *Building product safety: National Building Product Assurance Framework - BCR recommendation 21*, 2021, https://www.abcb.gov.au/sites/default/files/resources/2021/BCR-rec21-Building-product-safety.pdf, accessed 5 March 2024.

- GTIN is primarily used with the barcode which has been a common practice in product identification such that additional setup effort of using and reading GTIN is small for the industry.
- A GTIN can be encoded and used with other data carriers including RFID tags.[40]
- The RFID tag is an efficient data carrier in inventory and/or shop-floor management within a business. Nevertheless, RFID tags are not commonly used in the building product industry for traceability throughout the supply chain.[41]
- The cost information for RFID tags is not available.
- As an alternative identifier, the QR codes also serve the purpose of unique product identification, but it is not included in the evaluation because they are an open source of data carrier and freely available.

Consequently, the cost of identifier only includes the cost of using GTIN in this report.

The fee schedule of GTIN is summarised in the table 5.12.

5.12 Fee schedule of GTIN in 2023-24

Group	Annual turnover range	No. of GTIN needed	Annual fee	Joining fee
	$ million	No.	$	$
1	<1	≤5	≤345	0
2	<1	6 – 10	425	0
3	<1	11 - 100	595	199
4	<1	10000	759	199
5	1 – 5	10000	999	199
6	5 – 10	10000	1069	199
7	10 – 50	10000	1349	199
8	50 – 100	100000	4559	199
9	100 – 1,000	100000	10899	199
10	1,000 – 10,000	100000	14329	199

Source: GS1 Australia, 2023 - 24 *GS1 Australia Membership Fee Schedule*, July 2023, https://assets.ctfassets.net/9uypwcnuzbqi/7p9duf3lzN69rnRPQUFsQp/8d4e0a2f360f292402b98b9fd4de09c6/GS1au-fees-individual-barcode-numbers-and-full-membership.pdf, accessed 4 March 2024.

The proposed implementation of GTIN as the standard product identifier will affect all manufacturers and suppliers except those who have already adopted GTIN. According to ABCB's Building Product Safety report, about 1,300 Australian suppliers have used GTIN for unique product identification.[42] If this proposed change comes into effect in 2025, the cost of using GTIN is estimated at $21.0 million, including $3.4 million of joining fees and $17.6 million of annual fees.

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[40] GS1 Australia, *Global Trade Item Number GTIN - GS1 Australia*, 2024, https://www.gs1au.org/what-we-do/standards/global-trade-item-number-gtin, accessed 5 March 2024.

[41] Consultations with industry stakeholders, 2024.

[42] ABCB, *Building product safety: National Building Product Assurance Framework - BCR recommendation 21*, ABCB, 2021, p.18.

5.13 Estimating cost of GTIN in 2025, in 2023 dollars

Annual turnover	GTIN fee group	Affected businesses [b]	Joining fee	Annual fee
$		No. of businesses	$	$/ year
1 to 49,999	1	1810	-	345
50,000 to 74,999	2	1945	-	425
75,000 to 199,999	3	4544	199	595
200,000 to 999,999	4	4680	199	759
1 million to 2 million	5	3350	199	999
2 million to 5 million	5	2106	199	999
5 million to 10 million	6	988	199	1,069
10 million to 50 million	7	941	199	1,349
> 50 million [a]	8 and 9	275	199	7,729
Total		**20,639**	**3,359,916**	**17,608,475**

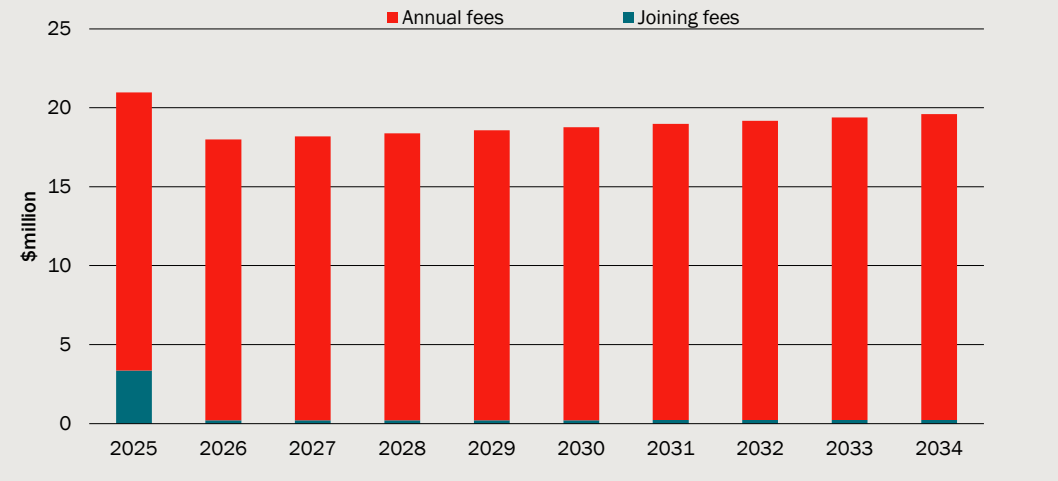
[a] Taking average of the two GTIN group '$50 million <turnover < $100 million' and '$100 million < turnover < $1 billion' to capture businesses with annual turnover between $50 million and $1 billion.

[b] Without detailed information about who have adopted GTIN, it is assumed that the number of businesses that already use GTIN are distributed across sizes (annual turnover) in proportion to the distribution of number of businesses by size. The number of affected businesses is derived by the total number of businesses in 2025, minus the number of exempted businesses.

Source: CIE.

Over a 10-year evaluation period starting from 2025, the total cost of using GTIN is estimated at $142.8 million in present value (using the real social discount factor of 7 per cent per year), including $4.8 million of joining fees and $138.0 million of annual fees (chart 5.14). Note that from 2026 onwards, only new businesses entering the market will be required to pay the joining fees.

5.14 Costs of using GTIN, 2025 – 2034



Note: Values are presented in 2023 dollars

Data source: CIE.

Labelling costs

Labelling cost per business

According to consultations with industry stakeholders, the labelling cost of sticking labels on the packages of batch- or mass-produced products are minimal.

There are three common labelling technologies, and the associated costs are in the table 5.15. High-speed inkjet printing can be used on polymeric and ceramic products. Inkjet printing can be used on plasterboard or paper-based products. The annual cost consists of materials, maintenance and depreciation.

5.15 Cost of labelling per machine per supplier

Technology	Purchase cost	Annual cost
	$	$
Laser etching	100,000	50,000
High-speed inkjet printing	100,000	50,000
Drop-on-demand Inkjet printing	60,000	50,000
Average	86,667	50,000

Source: CIE consultations with industry stakeholders, 2024.

A scenario for small businesses

Most businesses label their products one way or another. The proposed requirement of product labelling aims to target those who have not done so, and in this section, we envisage a likely scenario where a proportion of the smaller businesses with annual turnover is less than $200,000 – who have not labelled their products – was affected by this proposed requirement.

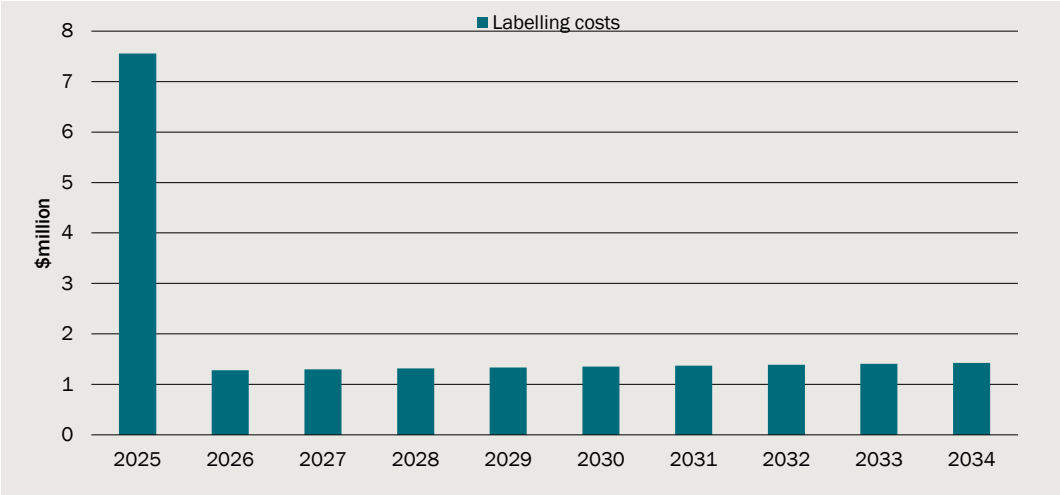
These businesses may not need to acquire the machine given the size of business. Instead, they may outsource from labelling and identification service providers and bear annual costs which could be inferred from table 5.15.

In this scenario, we assume that:

- The proposed change will come into effect in 2025.
- 5 per cent of the small business group (with annual turnover less than $200,000) are affected and will label their products as required.
- No acquisitions or installation of labelling technologies will occur.
- Annual costs will be incurred to affected businesses and assumed to be a fraction of the annual cost of $50,000 in table 5.15.
  - 10 per cent of $50,000 is incurred to the businesses with turnover less than $50,000.
  - 20 per cent of $50,000 is incurred to the businesses with turnover between $50,000 and $75,000.
  - 50 per cent of $50,000 is incurred to the businesses with turnover between $ $75,000 and $200,000.

Over a 10-year evaluation period, the total cost of labelling on products is estimated at $16.3 million in present value (using the real social discount factor of 7 per cent per year) for the affected small businesses (chart 5.16).

5.16 Labelling costs, 2025 – 2034



Note: Values are presented in 2023 dollars.

Data source: CIE

Compliance and enforcement activities

Queensland is currently the only Australian state implementing 'chain of responsibility' laws (although the NSW equivalent laws have been passed by Parliament they have not yet been fully implemented).

The Queensland Building and Construction Commission (QBCC), the agency responsible for administering the chain of responsibility laws does not publish the cost of administering these laws.

However, as a general indicator, the compliance and enforcement costs incurred by QBCC could be in the order of around **$1.5 million** to **$2 million** per year based on the following.

- The estimated cost of the team primarily responsible for building products is estimated at around $1.48 million per year based on the following.
  - The team includes 7 full-time equivalents (FTEs).
  - Based on QBCC's 2022-23 annual report, the average cost per FTE (excluding costs related to the Home Warranty Insurance scheme which are not relevant to the QBCC's building product functions) is around $211 000, including: wages and salaries, staff-related on-costs and supplies and services (see table 5.17).
- In addition, other parts of QBCC also incur costs associated with administering the building products regulatory framework. For example:
  - Formal enforcement actions are handled by the compliance team
  - The communications team assists with the development of educative materials.

5.17 Average cost per FTE — QBCC

	Annual costs	Average cost per FTE[a]
	$'000	$'000
Employee expenses	77 105	133
Supplies and services	38 898	67
Depreciation and amortisation	4 637	8
Other expenses	1 559	3
Total	**122 199**	**211**

[a] Based on 579 FTEs (see QBCC 2022/23 Annual Report, p. 68.

Note:

Source: QBCC, 2022/23 Annual Report, pp. 54 and 68.

The cost of compliance and enforcement activities is likely to be proportional to building activity (or more specifically, the number of building defects). For example, more building activity is likely to generate more complaints/enquiries, which would increase the resources required to investigate. That said, the costs might not increase proportionately because there are likely to be economies of scale in enforcement activities, particularly if operated as a national (rather than state-based) scheme.

- For example, where a non-conforming product is sold nationally, only one investigation would be needed and any associated enforcement actions may be required only once at the national level.
- On the other hand, under separate state-based schemes, there may be multiple investigations on the same product and enforcement action may be required in each state and territory.

Nevertheless, as an indicator of the potential compliance and enforcement costs at the national level, we scale up the estimate of Queensland's compliance and enforcement costs (based on Queensland's estimated share of total building defect costs —around 20 per cent). This implies a total national cost of around $9 million per year.

Feedback on the draft report suggested this estimate may under-estimate the true compliance and enforcement costs, particularly if significant pro-active compliance and enforcement activities are envisaged. QBCC currently does some proactive compliance and enforcement activities, but most relies on investigating complaints. We therefore scale up our estimate by 50 per cent, implying a national cost of around $13.4 million per year.

Furthermore, building product laws already apply in NSW and Queensland in the base case, the additional costs as a result of the BPAF options is around **$7.27 million** per year. This is around **$54.66 million** in present value terms over 10 years, using a discount rate of 7 per cent.

5.18 Additional compliance and enforcement costs

	Share of defect-related costs	Estimated compliance and enforcement costs (based on QBCC)	Estimated compliance and enforcement costs (scaled up by 50%)	Additional costs — annual	Annual costs — net present value[a]
	Per cent	$ million	$ million	$ million	$ million
NSW	26%	2.36	3.54	0.00	0.0
VIC	34%	3.04	4.56	4.56	34.3
QLD	20%	1.75	2.63	0.00	0.0
SA	5%	0.41	0.62	0.62	4.6
WA	12%	1.07	1.60	1.60	12.0
TAS	1%	0.09	0.14	0.14	1.1
NT	1%	0.06	0.09	0.09	0.7
ACT	2%	0.18	0.27	0.27	2.0
Total	**100%**	**8.96**	**13.43**	**7.27**	**54.66**

[a] Calculated over 10 years, using a discount rate of 7 per cent.

Source: CIE based on: QBCC, 2022/23 Annual Report, pp. 54 and 68.

Estimating the benefits

In general, the benefits are difficult to estimate as there is limited robust information available.

Avoided defect-related costs

In chapter 2, we estimated that ineffective regulation in relation to building products could be contributing around **$658.8 million** to the overall defect problem. We assumed that:

- 50 per cent of the problem ($329.4 million per year) related to failures relating to non-conforming products and selection of compliant products
- 50 per cent of the problem ($329.4 million per year) related to failures relating to installation of the right products (as specified in the plans).

The extent to which these potential benefits would be realised depends on how effective the proposed options are at addressing the issue.

Effectiveness of reforms

The impacts of building-related reforms are difficult to estimate particular *ex ante* (i.e. before they have been implemented) where they cannot yet be observed. In our high-level assessment of the impacts of implementing the BCR recommendations, we relied on expert opinion, via stakeholder consultations and a survey of practitioners, on the extent to which implementing the BCR recommendations will reduce the problems associated with building defects.

Based on this approach, we estimated that implementing the BCR recommendations would reduce the costs associated with defects by around:

- 53 per cent for Class 1 buildings (detached houses and townhouses)
- 57.8 per cent for Class 2 buildings (apartment buildings)
- 57.5 per cent for other commercial buildings (Class 3-9 buildings).

Note that the BCR did not include any specific recommendations on building product regulation (i.e. the BCR recommended only that the Building Ministers' Forum agrees its position on the establishment of a compulsory product certification system for high-risk building products).[43] The benefits of building product reform could, in principle, be additional to the estimated impacts of the BCR recommendations, rather than a subset.

For the purposes of the CBA, we assume that the proposed reforms in relation to building products are as effective as the BCR package in addressing defect-related costs arising from building product issues.

Reduced defects from improvements in the provision of accurate information

The estimated reduction in defect-related costs as a result of improvements in the provision of accurate information is estimated at around **$80.6 million** per year or around **$605 million** in net present value terms over 10 years, using a discount rate of 7 per cent.

- This estimate assumes:
  - the effectiveness of the proposed reforms in addressing building defects related to building products is similar to the estimated effectiveness of the BCR recommendations in addressing the broader defect problem (see above)
  - there are no additional benefits in NSW and Queensland as these states have building product regulation in place to address non-conforming building products and support the selection of compliant products under the base case scenario.
- These benefits are assumed to be realised under all of the regulatory options.

5.19 Reduced defect-related costs from better information

	Detached dwellings and townhouses (Class 1)[a]	Apartment buildings (Class 2)[b]	Commercial buildings (Class 3-9)[c]	Annual total	Net present value[d]
	$ million	$ million	$ million	$ million	$ million
NSW[e]	0.0	0.0	0.0	0.0	0.0
VIC	15.0	26.3	9.1	50.5	379.4
QLD[e]	0.0	0.0	0.0	0.0	0.0
SA	1.9	3.4	1.6	6.8	51.3
WA	6.0	9.5	2.2	17.8	133.8

[43] Shergold, P. and Weir, B. *Building Confidence: Improving the effectiveness of compliance and enforcement systems for building and construction industry across Australia*, February 2018, p. 36.

	Detached dwellings and townhouses (Class 1)[a]	Apartment buildings (Class 2)[b]	Commercial buildings (Class 3-9)[c]	Annual total	Net present value[d]
	$ million	$ million	$ million	$ million	$ million
TAS	0.4	0.6	0.6	1.6	11.7
NT	0.3	0.4	0.3	1.0	7.2
ACT	0.9	1.3	0.7	2.9	22.1
Total	**24.5**	**41.5**	**14.5**	**80.6**	**605.4**

[a] Assumes the proposed reforms reduces defect-related costs associated with failures in product selection in Class 1 buildings by 53 per cent (consistent with estimates for the BCR package). [b] Assumes the proposed reforms reduces defect-related costs associated with failures in product selection in Class 2 buildings by 57.8 per cent (consistent with estimates for the BCR package). [c] Assumes the proposed reforms reduces defect-related costs associated with failures in product selection in commercial (Class 3-9) buildings by 57.5 per cent (consistent with estimates for the BCR package). [d] Calculated over 10 years, using a discount rate of 7 per cent. [e] Assumes no additional benefits in NSW and Queensland as these states have already implemented similar building product regulation under the base case.

Note:

Source: CIE estimates.

Reduced defects from avoiding product substitution

Some of the proposed options could avoid product substitution (where the product specified on the plan is substituted for an alternative non-compliant product) as follows:

- Product labelling (on either the product or packaging depending on the nature of the product) requirements could enable the building surveyor to verify that the product installed is the product on the plan. However, this would **not** be effective where:
  - the packaging has been discarded; or
  - a labelled product has been covered prior to inspection (and cannot be easily uncovered).
- The use of an interoperable digital product identifier could enable the builder to scan and record the products that have been used (such as in in a Building Information Model). Building surveyors would be able to use this information to verify that the products installed are compliant. However, there is currently no mandatory requirement to record the building products used, so interoperable digital identifiers would only be effective if the information is recorded.

The relative effectiveness of each of the above mechanisms in reducing product substitution is not known. For the purposes of the CBA, we assume:

- 50 per cent of the assumed total reduction in building product-related defect costs (based on the previous CIE survey of the impacts of the BCR package of reforms) could be achieved through product labelling, and
- 50 per cent of the assumed total reduction in building product-related defect costs could be achieved by the requirement for interoperable digital identifiers (such as a GTIN).

The implied reduction in defect costs from product substitution under these assumptions is shown in table 5.20.

5.20 Assumed reduction in defect costs from product substitution

	Assumed share of benefits	Reduction in defect costs from product substitution		
		Class 1	Class 2	Class 3-9
	Per cent	Per cent	Per cent	Per cent
Product labelling	50	26.5	28.9	28.8
Interoperable digital identifiers	50	26.5	28.9	28.8
Total	**100**	**53.0**	**57.8**	**57.5**

Source: CIE based on survey of building practitioners for the high-level analysis of the BCR recommendations.

We also assume that:

- these benefits are additive — as product labelling and digital identifiers are likely to reduce defects in different ways and have different limitations, we assumed that where both are used, the benefits can be added together
- the benefits would be realised in all states and territories as the product identifier and labelling requirements go over and above the existing requirements that apply in NSW and Queensland.

The estimated reduction in defect-related costs as a result of additional requirements relating to product identifiers and labelling is estimated at around **$92 million** per year or around **$693 million** in net present value terms over 10 years, using a discount rate of 7 per cent.

5.21 Reduced defect-related costs from digital product identifiers and labelling requirements

	Detached dwellings and townhouses (Class 1)	Apartment buildings (Class 2)	Commercial buildings (Class 3-9)	Annual total	Net present value[d]
	$ million	$ million	$ million	$ million	$ million
NSW	8.7	10.5	5.2	24.3	182.9
VIC	10.2	15.5	5.5	31.1	234.0
QLD	6.8	9.0	2.3	18.1	136.3
SA	1.3	2.0	0.9	4.2	31.6
WA	4.1	5.6	1.3	11.0	82.9
TAS	0.3	0.3	0.3	1.0	7.2
NT	0.2	0.2	0.2	0.6	4.4
ACT	0.6	0.8	0.4	1.8	13.6
Total	**32.1**	**43.9**	**16.2**	**92.2**	**692.9**

[a] Assumes the proposed reforms reduces defect-related costs associated with failures in product selection in Class 1 buildings by 53 per cent (consistent with estimates for the BCR package). [b] Assumes the proposed reforms reduces defect-related costs associated with failures in product selection in Class 2 buildings by 57.8 per cent (consistent with estimates for the BCR package). [c] Assumes the proposed reforms reduces defect-related costs associated with failures in product selection in commercial (Class 3-9) buildings by 57.5 per cent (consistent with estimates for the BCR package). [d] Calculated over 10 years, using a discount rate of 7 per cent.

Note:

Source: CIE estimates.

Avoided time costs

As discussed in chapter 2, the cost of extra time incurred by building surveyors due to lack of appropriate product information is in the order of $136 to $150 million per year or $1 billion in present value terms over 10 years from 2025 to 2034.

If these costs were saved in full (in states and territories other than NSW and Queensland) as a result of the proposed changes in the building product regulations the benefits would be around $585 million in present value terms over 10 years (using a discount rate of 7 per cent).

Sensitivity and scenario analysis

Given the uncertainty around the estimates we consider some alternative scenarios to test the robustness of the findings from the CBA.

Testing costs

As discussed above, testing costs were excluded from the main CBA. Below we explore several scenarios in relation to testing costs to test the extent to which the testing costs would affect the key findings from the CBA.

Testing cost per product

Testing costs vary with the nature of building products and their intended applications. According to industry stakeholders, cost per product usually ranges from $10 000 to $200 000. A median cost for a building product to be fully tested to multiple propositions is about $50 000.

This estimate indicates the possible size of testing costs arising from the proposed change, rather than the true value of testing costs. We acknowledge that tests vary in complexities as well as costs, which may not be well represented in the assumed testing cost per product. For instance, the average cost per product in the Watermark is about $8,251 (adjusted to 2023 dollars), while for a fire-resistant product to be fully tested and certified, it can cost at least $120,000. A more accurate estimate that captures variation in testing costs would require a large amount of data of significant granularity – such as the distribution across different types of building product, how they are tested, and what is associated cost of each test or product – which would not be easily attainable.

Note that the test results for some products have no expiry and thus last for lifelong of the products, such as flooring materials and structural products. For other products, there appears a tacit agreement that re-test is needed every 5 to 10 years depending on the products – for example, fire-proof building products will be reassessed every 5 years. A 20-year-old test of a product is generally not considered as a good quality verification in the industry.

Scenarios for untested building products

The proportion of additional products that would be tested as a result of the proposed changes is unknown. However, for the reasons cited above, we expect it to be relatively small proportion of total products.

We consider several scenarios where the proportion of additional products tested per year is:

- 1 per cent of total products (implying around 7000 additional products tested)
- 5 per cent of total products (implying more than 35 000 additional products tested), and
- 10 per cent of total products (implying more than 70 000 additional products tested).

We also assume that any new products launched after 2025 will not be affected or considered as the cost impact of the proposed change (i.e. these products would be tested under the base case).

The estimated testing costs and the total net impact including the testing costs under each of the above scenarios is summarised in table 5.22.

- Under the scenario where the additional products tested each year are 1 per cent of total building products, all options still deliver significant net benefits.
- Under the scenario where the additional products tested each year are 5 per cent of total building products:
  - Options 10 and 12 still deliver net benefits
  - Options 9 and 11 impose a net cost.
- Under the scenario where the additional products tested each year are 10 per cent of total building products, all options are estimated to deliver a net cost. In general, this scenario is considered unlikely.

5.22 Estimated testing costs and the impact on CBA results

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Net benefit (central case)	1 202.1	1 878.6	1 752.2	2 428.8
1 per cent of products tested				
Testing costs	350.7	350.7	350.7	350.7
Net impact (including testing costs)	**851.4**	**1 527.9**	**1 401.5**	**2 078.1**
5 per cent of products tested				
Testing costs	1 753.7	1 753.7	1 753.7	1 753.7
Net impact (including testing costs)	**- 551.6**	**124.9**	**- 1.5**	**675.1**
10 per cent of products tested				
Testing costs	3 507.4	3 507.4	3 507.4	3 507.4
Net impact (including testing costs)	**-2 305.3**	**-1 628.8**	**-1 755.2**	**-1 078.6**

Note: Costs and benefits expressed in net present value terms over 1o years, using a discount rate of 7 per cent.
Source: CIE estimates.

Avoided delays

Industry stakeholders reported that in some cases the building surveyor is not provided with the relevant information to enable certification and therefore must request more information.

The AIBS reported that on average, this can take around two weeks for building surveyors to receive responses to their requests for building product information, which they need to verify compliance and conformance before issuing a certificate.[44]

One way to measure the cost of delays in building approvals is as an increase in holding costs. However, the extent to which delays increase holding costs depends on when the delay occurs. Where the delay occurs prior to approval it delays construction (where many of the costs are incurred) and therefore likely completion (i.e. when the benefits are realised). That is, it delays the net benefits.

If all construction activity was delayed by 2 weeks, we estimate the cost could be around **$60.72 million** per year. This is based on the following:

- According to ABS building activity data, there was on average approximately **$112.8 billion** year in building activity over the period from 2012 to 2023.
- As an indicator of the *net benefits* of that construction activity, we assume a margin of 20 per cent of the construction costs.
- Assuming a holding of 7 per cent per annum (consistent with the discount rate), a 2 week delay implies a cost of around 0.27 per cent**.**

However, not all construction activity is delayed while the building surveyor waits for building product information. We consider scenarios where:

- 1 per cent of construction activity is delayed
- 10 per cent of construction activity is delayed
- 20 per cent of construction activity is delayed.

The CBA results under each of these scenarios is shown in table 5.23. Although the avoided delays costs could be somewhat significant, they do not materially affect the CBA findings.

5.23 Estimated avoided delays and the impact on CBA results

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Net benefit (central case)	1 202.1	1 878.6	1 752.2	2 428.8
5 per cent of building delayed				
Avoided delay cost	22.8	22.8	22.8	22.8
Net impact (including avoided delays)	**1 224.9**	**1 901.5**	**1 775.0**	**2 451.6**
10 per cent of building delayed				

44 Based on AIBS Consultation

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Avoided delay cost	45.6	45.6	45.6	45.6
Net impact (including avoided delays)	**1 247.7**	**1 924.3**	**1 797.8**	**2 474.4**
20 per cent of building delayed				
Avoided delay costs	91.3	91.3	91.3	91.3
Net impact (including avoided delays)	**1 293.3**	**1 969.9**	**1 843.5**	**2 520.0**

Note: Costs and benefits expressed in net present value terms over 10 years, using a discount rate of 7 per cent.
Source: CIE estimates.

Benefits from improved traceability

As discussed above, the benefits of improved traceability are difficult to estimate. Nevertheless, we consider a scenario where:

- Product traceability could save around $500 million in the cost of identifying a product that has been identified as unsafe (such an issue would be broadly similar to the flammable cladding issue)
- We consider scenarios where the probability of such an issue emerging in any particular year is:
  - 0.2 (i.e. every 5 years)
  - 0.1 (i.e. every 10 years)
  - 0.05 (i.e. every 20 years).

These benefits are only likely to accrue under the options with interoperable digital identifiers (i.e. Options 11 and 12). Under all of these scenarios, Option 12 remains the option that delivers the highest net benefits.

5.24 Estimated testing costs and the impact on CBA results

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Net benefit (central case)	1 202.1	1 878.6	1 752.2	2 428.8
Major issue every 5 years				
Avoided product identification costs	0.0	0.0	751.5	751.5
Net impact (including avoided product identification costs)	**1 202.1**	**1 878.6**	**2 503.7**	**3 180.3**
Major issue every 10 years				
Avoided product identification costs	0.0	0.0	375.8	375.8
Net impact (including avoided product identification costs)	**1 202.1**	**1 878.6**	**2 128.0**	**2 804.5**
Major issue every 20 years				
Avoided product identification costs	0.0	0.0	187.9	187.9

	Option 9	Option 10	Option 11	Option 12
	$ million	$ million	$ million	$ million
Net impact (including avoided product identification costs)	**1 202.1**	**1 878.6**	**1 940.1**	**2 616.7**

Note: Costs and benefits expressed in net present value terms over 1o years, using a discount rate of 7 per cent.
Source: CIE estimates.

Productivity improvements

Interoperable digital product identifiers are an enabling technology that could potentially result in significant productivity improvements in the construction industry and in the product supply chain.

As identified in the New Zealand study, there is empirical evidence showing that uptake of digital business tools is associated with higher productivity growth.[45]

Using a similar approach to the indicative estimate provided in the New Zealand study, the productivity benefits could be around **$701 million per year** based on conservative assumptions. This is around **$5.27 billion** in present value terms over 10 years (using a discount rate of 7 per cent). This estimate is based on the following:

- Gal et. al. (2019) estimated the impact on multi-factor productivity growth of the uptake of various digital tools (including: high-speed broadband, Enterprise Resource Planning software, Customer Relationship Management software and cloud computing). In particular, a 10 percentage point increase in the uptake of Enterprise Resource Management software (this is closest to the type of technology enable by the use of interoperable digital identifiers) across an industry was estimated to increase industrywide multi-factor productivity by 1.01 per cent.
- A 20 percentage point increase in the uptake of relevant digital tools (consistent with the estimate provided in the NZ study) would therefore increase productivity growth by 2.02 per cent.
- According to ABS estimates, the average industry value added of the building construction industry over the five years to June 2022 was around $34.7 billion.

Note that Gal et. al. (2019) estimate the impact on annual productivity growth, implying that the impact would be cumulative over time (although productivity growth would slow as the industry moved towards to frontier). From this perspective, the estimate above is extremely conservative.

Nevertheless, these indicative estimates such the productivity benefits from interoperable digital product identifiers could be large and significantly above the associated costs.

[45] See for example: Gal, P. Nicoletti, G. Renault, T. Sorbe, S. and Timiliotis, C. Digitalisation and productivity: In search of the holy grail — Firm-level empirical evidence from EU countries, OECD Economics Department Working Papers No. 1533, 6 February 2019.

6 Impacts of product registration

Summary

Although cost recovery guidelines generally require a principles-based assessment and do not explicitly require a CBA, one of the key principles is that cost recovery should not be applied where it is not 'cost effective'.

One interpretation of where 'cost effective' is where the benefits outweigh the costs. However, the costs depend on key details, including:

- the details of the registration process
- the way products are defined (including what constitutes a separate product).

Based on some high-level estimates (below), we find that:

- User charges collected through a simple self-registration process is likely to be a more efficient funding mechanism than general taxation revenue (i.e. the efficiency gains from the avoided taxes are likely to outweigh the costs associated with developing and maintaining the register and the self-registration process).
- On the other hand, the costs associated with CAB assessments would outweigh the efficiency gains from avoided taxes. However, a registration process involving a CAB assessment could also deliver some additional benefits from improved compliance, which have not been considered.

Impacts

The main impacts of the registration process would be as follows:

- Regulators would incur costs associated with the development and maintenance of the register.
- Suppliers would incur costs associated with the registration process.
- The revenue raised through the registration process would be used to fund compliance and enforcement activities:
  - As this would reduce the need to raise revenue from taxes, the main benefit is the avoided efficiency losses associated with reduced taxes (as all taxes have efficiency costs)
  - The revenue itself is a transfer from suppliers to the various state and territory governments.

Register development and maintenance

The cost of developing a register is likely to vary depending on the functionality required. As an indication, the cost of developing and maintaining the database for the EESS was reportedly around **$5 million**.

We also note there is an existing, albeit voluntary, government-operated register for building products: the register used for CodeMark. This register presumably has most of the functionality required and any mandatory registration requirements could be integrated into (or replace) the CodeMark scheme. At a minimum, the CodeMark register could be used as a starting point for a mandatory product register.

The additional costs are therefore likely to be relatively modest, possibly less than **$1 million dollars**.

Cost of registration processes

There would also be some costs associated with the registration process. These costs would also depend on the specific requirements. We consider two potential options:

We consider two options:

- CAB assessment — under several mandatory and voluntary product certification schemes, products are entered on the register by an independent accredited Conformity Assessment Body (CAB); the regulator has no role in the process. The CAB assessment would also involving ensuring the product complies with all relevant requirements.
  - In the context of high-risk building products, the CAB's role would also presumably include: ensuring that all relevant information is provided (including reviewing whether the relevant test certificates are available); and ensuring that the user charges have been paid.
  - Based on the information available, we estimate the cost of this option would be around **$26.4 million per year** (table 6.1 — see below for details).
- Self-registration — as the primary objective of the registration requirement appears to be to fund the cost of compliance and enforcement activities, a CAB assessment may not be necessary. This could be replaced by a simple self-registration process. We estimate the cost of this option could be around **$1.8 million per year**.

6.1 Estimated annual registration costs

	Estimated products	Estimated registration costs	
		CAB	Self-registration
	No.	$ million	$ million
Fire safety systems[a]	30 000	15.00	1.04
Reinforcing and structural steel[b]	1 750	0.88	0.06
Structural timber[c]	13 785	6.89	0.48
Glazing products[d]	7 000	3.50	0.24

	Estimated products	Estimated registration costs	
		CAB	Self-registration
	No.	$ million	$ million
Waterproofing membranes[e]	250	0.13	0.01
Total	**52 785**	**26.39**	**1.82**

[a] Estimate from industry consultations. [b] Based on the number of products certified by the Australasian Certification Authoriy for Reinforcing and Structural Steels (ACRS), assuming 80 per cent of products are certified. [c] The estimate is a proportion of total estimated number of building products in the ANZSIC industry 'Other wood Product Manufacturing' (120,621 products) in the table 5.7. It only considers the timber products from the four manufacturing activities: roof truss manufacturing, glue laminated lumber (Glulam) manufacturing, laminated veneer lumber (LVL) manufacturing, and plywood manufacturing. Outputs of these manufacturing activities appear relevant to structural use according to the industry guidance (see source) and the list of Codemark certified product type. [d] Estimate based on industry consultations. Based on the number of glazing products in the WERS database: https://awa.associationonline.com.au/werscontent/certified-products-hub, accessed 11 March 2024. Assumes that 80 per cent of glazing products are in the WERS database. [e] Estimate based on industry consultations.

Source: Australian Glass and Window Association website, https://awa.associationonline.com.au/werscontent/certified-products-hub, accessed 11 March 2024. Timber Queensland, *Structural time product identification and traceability in Queensland, https://www.timberqueensland.com.au/Docs/Using%20Timber/Advisory-to-the-Timber-Industry_final.pdf*. Codemark, *List of certified product types*, 2024, unpublished.

Source: CIE.

Cost per product

Costs would depend on factors such as:

- The specific registration requirements — as discussed above two options are considered:
  - CAB assessment — based on stakeholder consultations, we understand that CAB fees are in the order of around **$500** per product registration.
  - Self-registration — we estimate that the cost of a simple self-registration process (mainly involving the payment of user charges) with no certification or approval process from a CAB or regulator could be around $34.50 per registration based on:
    - An assumed 30 minutes per registration;
    - An hourly wage rate of around $69 based on the median hourly earnings reported by the ABS ($39.50),[46] with a multiplier of 1.75 applied to account for on-costs and overheads.
- How frequently the products would need to be certified to remain on the register — as the primary purpose of registration would be to recover costs and an annual revenue source is required, we assume a re-registration process every year.

Number of high-risk products

The specific number of high-risk products is not known. For the purposes of the registration requirements, the total number of products incurring CAB fees to be entered on the register depends on how a separate product is defined. This can vary significantly depending on the purpose. For example:

- A separate GTIN is required for each different packet size.

46 ABS, Employee earnings, August 2023, https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/employee-earnings/aug-2023, accessed 18 March 2024.

- On the other hand, for many product certification schemes, each certificate generally covers a family of products.

The high-level estimates of the potential number of products are based on the following:

- Based on an industry estimates, manufacturers and suppliers that specialise in fire safety products would have around 15 000 product lines. However, when products such as fire-rated timber, glazing and cladding are also included, the total number of products could be more than 30 000.
- We estimate there could be around 1750 reinforcing and structural steel products was based on:
  - the number of products certified by the Australasian Certification Authority for Reinforcing and Structural Steels (ACRS)[47]
  - an assumed 80 per cent of reinforcing and structural steel products available in the Australian market certified by ACRS.
- The estimate of structural timber products is derived from the approach to estimating the number of building products outlined in the chapter 5. For the purpose for analysing the registration process, it is now focused on manufacturing activities for timber products that appear relevant to structural application, including roof truss manufacturing, glue laminated lumber (Glulam) manufacturing, laminated veneer lumber (LVL) manufacturing, and plywood manufacturing. Products of these activities relate to structural applications according the industry guidance and the list of Codemark certified product type. [48, 49]
- We estimate there could be around 7000 glazing products based on:
  - the number of residential and commercial glazing products in the WERS database (5581)[50],
  - an assumed 80 per cent of glazing products are in the WERS database.
- The estimate of the number of waterproofing membranes (~200-300) was based on industry consultations.

Avoided efficiency losses

The 'excess burden of taxation' is a measure of the relative efficiency of different taxes. The marginal excess burden (MEB) measures the efficiency cost to the economy for each additional dollar of revenue raised. There are several credible studies that estimate the MEB for a range of Australian taxes (table 6.2).

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47 ACRS website, https://steelcertification.com/product-certification, accessed 18 April 2024.

48 Timber Queensland, *Structural time product identification and traceability in Queensland, https://www.timberqueensland.com.au/Docs/Using%20Timber/Advisory-to-the-Timber-Industry_final.pdf,* accessed April 19 2024.

49 Codemark, *List of certified product types*, 2024, unpublished.

50 AWA website, https://awa.associationonline.com.au/werscontent/certified-products-hub, accessed 11 March 2024.

6.2 Relative efficiency of selected taxes (descending order), by study

KPMG Econtech [a]		KMPG Econtech		Commonwealth Treasury	
2010	MEB [b]	2011	MEB [b]	2015	MEB [b]
Municipal rates	0.02	Land tax	0.09	Broad based land tax	-0.1
GST	0.08	GST	0.12	Personal income tax (labour & capital)	0.16
Land taxes	0.08	Personal income tax	0.24	Broad based GST	0.17
Labour income tax	0.24	Motor vehicle stamp duty	0.33	Current GST	0.19
Conveyancing stamp duties	0.34	Payroll tax	0.35	Labour income tax	0.21
Motor vehicle stamp duties	0.38	Company tax	0.37	Company tax	0.50
Corporate income tax	0.40	Commercial transfer duty	0.74	Stamp duty on conveyances	0.72
Payroll tax	0.41	Residential transfer duty	0.85		

[a] Modelling and results were prepared for and incorporated into the Henry Tax Review

[b] Marginal excess burden is the cost of the tax due to changing it by a small amount (usually such that total government revenue increases by $1).

Note: In all studies, all taxes are imposed at the Federal level. That is, no taxes create a distortion that sees economic resources move across state borders within Australia

Sources: KPMG Econtech 2010, CGE analysis of the current Australian tax system, prepared for Department of Treasury, 26 March; KPMG Econtech 2011, Economic analysis of the impacts of using GST to reform taxes; Australian Treasury 2015, Understanding the economy-wide efficiency and incidence of major Australian taxes.

We estimate the revenue to be raised to fund compliance and enforcement activities for high-risk products could be around **$10.1 million per year** based on the following.

- We estimated that the total national-level cost of compliance and enforcement activities relating to building products (based on the cost of administering the chain of responsibility laws in Queensland scaled up by 50 per cent) could be around **$13.4 million per year** (see above).
- However, not all compliance and enforcement activities would relate to high-risk products. Under best practice principles, suppliers of high-risk products should not cross-subsidise other suppliers. The above estimate assumes that **75 per cent** of compliance and enforcement activities would relate to high-risk products on the basis that: investigations into complaints about high-risk products are likely to be more rigorous than for other products; and proactive compliance activities are likely to be focused on high-risk products. This implies that governments would need to fund the remaining **$3.36 million** for general taxation revenue.

Based on the number of products estimated above, this implies an average charge of around **$190 per product**. Note this is an indicative estimate only based on the assumptions above.

We estimate that funding these compliance and enforcement activities for high-risk products through user charges could result in an efficiency benefit of around **$3 million** per year, based on the following.

- These charges would reduce the call on general taxation revenue by **$10.1 million** per year (i.e. equivalent to the revenue to be raised — see above).
- The MEB varies significantly across taxes and it is not clear what specific taxes would be displaced by user charges to fund building product compliance and enforcement activities. A MEB of around **0.3** is a reasonable indicative estimate.
- If the charges were well-designed and the basis for the charge closely linked to the key driver of cost, then the user charges could also have some direct efficiency benefits; however, these have not been measured.

7 Key findings

CBA options

Although there is much uncertainty around the costs and benefits of the identified BPAF options — largely due to a lack of reliable information — key findings of the CBA are as follows.

- The benefits of expanding building product 'chain of responsibility' laws beyond Queensland and NSW to the other jurisdictions (this is effectively Option 9) appears to deliver significant net benefits.
- It is also plausible that there could be significant net benefits from mandatory labelling on the product or packaging (depending on the nature of the product). The costs of the mandatory labelling requirements are estimated to be relatively modest, while labelling could potentially help to avoid issues relating to product substitution.
- The benefits for mandating interoperable digital product identifiers are uncertain. However, we consider it likely that the benefits from more effective identification of product substitution and the potential for additional productivity gains would outweigh the associated costs.

Product registration

In general, there is a sound in-principle case to recover the cost of compliance and enforcement activities from suppliers though user charges.

In terms of the cost-effectiveness, this largely depends on factors such as:

- the details of the registration process
- the way products are defined (including what constitutes a separate product).

Based on some high-level assumptions, we find that:

- User charges collected through a simple self-registration process are likely to be a more efficient funding mechanism than general taxation revenue (i.e. the efficiency gains from the avoided taxes are likely to outweigh the costs associated with developing and maintaining the register and the self-registration process).
- On the other hand, the costs associated with CAB assessments would outweigh the efficiency gains from avoided taxes. However, a registration process involving a CAB assessment could also deliver some additional benefits from improved compliance.

Importantly, well-designed user charges could ensure adequate funding, as there is a risk that the effectiveness of the options identified could be undermined by inadequate funding for compliance and enforcement activities.

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