Title: Impact Assessment on transposition of Directive 2014/37/EU relating to the compulsory use of safety belts and child restraint systems in vehicles (i-size child restraint systems).

IA No: DfT00318

Lead department or agency: Department for Transport

Other departments or agencies:

Impact Assessment (IA)

Date: 25/11/2014

Stage: Final

Source of intervention: EU

Type of measure: Secondary legislation

Contact for enquiries:

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RPC Opinion: Not Applicable

2017

Summary: Intervention and Options

Cost of Preferred (or more likely) Option					
Total Net Present Value Business Net Present Value					
£6.1m	£0	£0	No	NA	

What is the problem under consideration? Why is government intervention necessary?

The regulation of child seat restraints is intended to protect vulnerable passengers. Current domestic regulations only allow child restraints which conform to UN-ECE Regulation 44. The intention of the proposed change is to allow the use of child restraints conforming to UN-ECE Regulation 129 in addition to Regulation 44. Child restraints which conform to Regulation 129 provide additional safety benefits, leading to enhanced road safety over and above existing designs. Allowing use of the new type of child seat in addition to the older standard will also increase the range of seats available to consumers.

What are the policy objectives and the intended effects?

The policy objective is to reduce the number and seriousness of injuries to child vehicle occupants whilst keeping any additional burden to industry or vehicle users to a proportionate level. UN-ECE Regulation 129 is intended to provide additional safety benefits over and above existing standards. The regulation sets provisions for a number of technical enhancements to the existing regulatory requirements.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

- 1. Do nothing this would not improve road safety or meet the obligation under the Directive. This is the counterfactual against which the policy options are assessed.
- 2. Policy Option 1- To allow the use of Regulation 129 standard child restraints in vehicles as well as the existing Regulation 44 standard. This gives consumers the choice of which type of child restraint to buy, while allowing manufacturers the freedom to carry on making and selling existing products, as well as designing and testing new products. This is the favoured policy option.

A third option, to require all new child seats sold from date of implementation to be of Regulation 129 standard, was dismissed on the basis that this would go beyond the requirements of the EU directive. This would be considered 'gold-plating' and would not be deliverable.

Will the policy be reviewed? It will/will not be reviewed. If applicable, set review date: Month/Year					
Does implementation go beyond minimum EU requirements? No					
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base. Micro Yes Small Yes Yes Yes Yes Yes					•
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: N/A	Non-	traded: N/A

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

		Dat		
Signed by the responsible Minister:	Robert Goodwill	e:	4/12/2014	

Summary: Analysis & Evidence

Policy Option 1

Description: Allow the use of Regulation 129 standard child restraints in vehicles as well as the existing Regulation 44 standard.

FULL ECONOMIC ASSESSMENT

Price Base	PV Base	Time Period	Net	Benefit (Present Val	ue (PV)) (£m)
Year 2014	Year 2015	Years 10	Low: -£12.6m	High: £18.4m	Best Estimate: £6.1m

COSTS (£m)	Total Tra (Constant Price)	nsition Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		£0.2m	£1.7m
High	Optional		£5.5m	£46.6m
Best Estimate			£2.5m	£21.3m

Description and scale of key monetised costs by 'main affected groups'

Ongoing costs:

Manufacture costs to produce and design the new enhanced child car seats, which will be borne by the consumer (£21.3m).

Other key non-monetised costs by 'main affected groups'

None

BENEFITS (£m)	Total Tra (Constant Price)	ansition Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		£2.5m	£20.2m
High	Optional		£4.2m	£34.0m
Best Estimate			£3.2m	£27.3m

Description and scale of key monetised benefits by 'main affected groups'

Ongoing benefits:

Reduction in casualties (£27.3m)

Other key non-monetised benefits by 'main affected groups'

There may be some business benefits from being able to manufacture and sell the enhanced car seat, especially if businesses are also able to export the products. We do not have sufficient data to monetise the benefit to manufactures from increased exports. Other business benefits are likely to be sectoral: Other sectors or businesses which only sell the older style car seats may lose out, as consumers gradually turn to the new enhanced child car seats.

Key assumptions/sensitivities/risks Discount rate 3.5

The wearing rate is assumed to be 90% in the policy. The mitigation rate for casualties is 10% for fatal, 12% for serious and 2% for slight injuries. The additional cost to manufacture the enhanced car seats is in the range of £0.20 - £3.27 per unit. The uptake for the new car seats is assumed to be 35% in year 1, and progressively increases by 10 percentage points per year.

BUSINESS ASSESSMENT (Option 1)

Direct impact on bus	siness (Equivalent Annu	In scope of OITO?	Measure qualifies as	
Costs: £0	Benefits: £0	Net: £0	No	NA

Evidence Base

Problem under consideration

In Great Britain between 2006 and 2012, each year an average of 22 children less than 12 years of age were killed and 299 received serious injuries when the vehicle in which they were travelling was involved in a collision with another vehicle or object. Whilst these numbers may be low when compared to other road casualty groups, they are particularly devastating for the families involved.

The regulation of child seat restraints is intended to protect vulnerable passengers. Current domestic regulations only allow child restraints which conform to UN-ECE Regulation 44. The intention of the proposed change is to allow the use of child restraints conforming to UN-ECE Regulation 129 in addition to Regulation 44. Child restraints which conform to Regulation 129 provide additional safety benefits, leading to enhanced road safety over and above existing designs. Allowing use of the new type of child seat in addition to the older standard will also increase the range of seats available to consumers.

The existing UN-ECE regulation governing child restraint construction came into force in 1981 (Regulation 44). European Directive 2003/20/EC mandated the use of an appropriate child restraint system for children up to 12 years of age or 150cms in height (135cms in GB), whilst at the same time requiring those systems to be approved to UN-ECE Regulation 44.03 or subsequent amendments. The 03 series of amendments came into force in 1995 and it follows that there is little or no residual benefit from these earlier interventions. The option of using products which conform to enhanced technical standards should therefore be available if we are to drive forward the safer vehicles agenda.

Rationale for intervention

The number of road user fatalities in Great Britain has been falling for several decades but the size of reductions seen over recent years has been unprecedented with a fall of 39%¹ from the 2005-09 average to 2013. Sustaining the recent reductions and making further progress in reducing road deaths and serious injuries is a key priority for the Government's Strategic

1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358035/rrcgb2013-00.pdf

Framework for Road Safety published in May 2011. One of the particular challenges identified within the framework is to ensure the continued development of safer vehicles.

The international regulation governing the construction and performance of child restraint systems is the United Nations Economic Commission for Europe (UN-ECE Regulation 44). Child restraint systems conforming to these requirements are mandated in all European Member States by European Directive 2003/20/EC.

Recognising that enhanced child restraint systems have the potential to reduce the number of child occupant casualties, the previous administration supported the UK participation in an informal working group of international participants to develop a new UN-ECE Regulation. Phase 1 of this work covers child restraint systems fitted with an integral harness for the occupant. These child restraint systems are known as 'i-size'. Further phases of work are ongoing which include standards for 'booster seats'. Products can conform only to Regulation 44 or Regulation 129, not both.

Current UK legislation makes specific reference to Regulation 44, and as such prohibits anything that does not conform to this, including the use of products conforming to Regulation 129. Section 15(1) and (3) of the Road Traffic Act 1988 ("RTA") requires that a person must not drive a vehicle on a road unless the child (passenger) is wearing a seat belt "in conformity with regulations".

The Government welcomes the harmonisation of standards on vehicle safety. It helps reduce costs for manufacturers who market products within the European Union, and in other territories that accept UN-ECE Regulations, while ensuring that high levels of safety are achieved. Accession to this international (global) Regulation will discourage regulatory diversity, which would increase the burden on the child restraint and vehicle manufacturing industries which sell their products globally.

Policy objective

The policy objective is to reduce the number and seriousness of injuries to child vehicle occupants, whilst keeping any additional burden to industry or vehicle users to a proportionate level.

UN-ECE Regulation 129 is intended to provide additional safety benefits over and above existing standards. The regulation sets provisions for a number of technical enhancements to the existing regulatory requirements, including:-

- Restraint categorisation Amends the method in which restraints are categorised from one based on a child's mass to one based on their height.
- Crash test Dummy Adopts a new type of child crash test dummies which are an improvement on the existing series of dummies.
- Test Bench Modifies the existing test bench to ensure that it is more representative of the modern day vehicle fleet.
- Side impact dynamic test Introduces a new side impact test.
- Travelling orientation Mandates a rear facing orientation for restraint systems approved for occupants up to the age of 15 months.

While it is anticipated that type approvals for the Regulation 44 standard will eventually be phased out, it is not the intention to prevent existing products from being used.

Description of options considered

There are two policy options, excluding 'do nothing'. These are:

1) To allow the use of Regulation 129 standard child restraints in vehicles as well as the existing Regulation 44. Implementation is expected to be in early 2015.

This gives consumers the choice of which type of child restraint to buy and use. It will allow manufacturers to carry on designing and testing new products to Regulation 44, as well as continuing to retail existing Regulation 44 approved child restraints. This is in addition to the opportunity to design, test and retail products to the new standard. This is the favoured policy option.

2) Require all new child seats sold from date of implementation (early 2015) to be of Regulation 129 standard.

This would ensure that all new units sold would be of a higher safety standard, and also ensure that these safer child restraints permeate the market quicker than would be the case under option 1. However, this would go beyond the requirements of the EU Directive and would constitute gold plating. It would also require all manufacturers to design and test new products, while not being able to sell the products they have previously committed expenditure in developing. This is not the favoured option.

Monetised and non-monetised costs and benefits

Do Nothing Scenario

Table 1 presents the current casualty figures observed under the status quo. The figures are obtained from the Department's Road Accident Statistics ('STATS 19') database, covering the last 10 years of casualty figures for under 5 year old car passengers. It can be observed that casualty figures have been falling throughout the 10 years for all casualty severities. The average casualty figures for the period 2008 – 2013 has been taken as the baseline for this analysis.

Table 1: Casualty figures for <5 year old car passengers for the period 2004 - 2013

Year	Killed	Serious	Slight
2004	16	123	2102
2005	11	109	1922
2006	15	107	1678
2007	12	90	1648
2008	14	103	1620
2009	5	81	1548
2010	7	82	1509
2011	5	76	1530
2012	9	74	1477
2013	5	72	1379
Average 2004 – 2013	10	92	1641
Average 2008 - 2013	8	81	1511

Source: Road Accident Statistics Data (unpublished)

It should be noted that table 1 presents figures from STATS 19, which are reported accidents only. Therefore, we expect these figures underestimate the true casualty figures. It is known that some injury accidents do not get reported to the police.

To take account of the under-reporting of casualties, we uplifted the figures in table 1 by a factor. This was applied to generate 'best' and 'high' estimates. The 'low' estimates are based on reported casualties only. The HEATco² project conducted a study to produce some empirical estimation across European countries to determine the appropriate level of uplift for each casualty severity. The study suggests that for the UK, serious injuries are under-reported by a factor of 1.25 and slight injuries by 2. The HEATco study further describes the need for an uplift of around 1.02 for fatalities to allow for deaths directly attributed to the accident but occurring more than 30 days after the accident.

Table 2 presents upper bound estimates based on the HEATco uplift factor ratios for each casualty severity. The best estimates are calculated as an average of the lower and upper bound estimates.

Table 2: Annual average for different casualty types for a 6 year time period (2008 - 2013)

	Lower (recorded accidents)	Upper (estimated by applying uplift factor to recorded accidents)	Best (mid-point between upper and lower)	Uplift factor (applied to generate upper- bound)
Fatal	8	8	8	1.02
Serious	81	102	92	1.25
Slight	1511	3021	2266	2

Market size

Unpublished data from Industry provided to the Transport Research Laboratory, suggests that in the UK, in 2009, the number of car seats sold to UK consumers was around 1.53 million units. This represents approximately 1.88 child restraint system (CRS) for every child born (there were approximately 812,000 births in the UK in 2013³).

Wearing rate

An important determinant of the effectiveness of child car seats is the 'wearing rate'. This term indicates the proportion of children that correctly use a CRS in practice. Wearing rates are routinely surveyed in the UK, and in 2009, around 77% of children aged under 5 years old were in a child seat or rear facing baby seat⁴.

² HEATco study - http://www.transport-research.info/Upload/Documents/201301/20130122 113653 88902 HEATCO D5 summary.pdf

³ From Office for National Statistics population statistics: http://ons.gov.uk/ons/taxonomy/index.html?nscl=Population

⁴ Core survey results for child restraint use are on page 12 of the seatbelt and mobile phone usage surveys report: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8899/seat-belt-phone-usage.pdf

In estimating the potential benefits of the policy we have assumed that, in the status quo, the number of child casualties would stay constant throughout the appraisal period. We assume no change in the effectiveness of car seats, the wearing rate, or any other improvements in road safety for child passengers. This is a simplifying assumption – in reality, it is likely that continued improvements in road safety and vehicle technologies would lead to reductions in child passenger casualties over time.

Monetised Benefits

Uptake

We assume that uptake for the enhanced car seats is expected to increase over the appraisal period. The initial high estimate uptake is 50%, while the low estimate uptake is 20%. The best estimate takes the mid-point of the high and low estimate to produce an uptake of 35% in year 1. The uptake across the appraisal period is presented in table 3. Note that our uptake assumptions are based on a 'best guess' to provide illustrative monetised benefits. We do not have suitable evidence to estimate the likely uptake at present.

Table 3 : Estimated uptake for enha	nced car seats	tor the	period 2015 –	2024
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Year	Low uptake	High uptake	Best uptake
2015	20%	50%	35%
2016	30%	60%	45%
2017	40%	70%	55%
2018	50%	80%	65%
2019	60%	90%	75%
2020	70%	100%	85%
2021	80%	100%	90%
2022	90%	100%	95%
2023	100%	100%	100%
2024	100%	100%	100%

The new design of CRS is expected to generate safety benefits for two reasons. Firstly, due to the improved instructions and usability, we expect that the number of children under 5 travelling with a correctly fitted CRS will increase. Secondly, due to the new safer design, we expect a reduction in casualties for accidents involving the new style of CRS. As illustrative assumptions, we use the following:

- 1. Assume that for children using the new-style CRS, 90% are fitted correctly
- 2. Assume new style CRS reduce fatal accidents by 10%, serious accidents by 12% and slight accidents by 2%.

Assumption (2) is based on figures used in an indicative cost benefit analysis in the Analysis for the Development of Legislation report prepared by TRL (Hynd, Pitcher, Hynd, Robinson and Carroll, 2010)⁵. It has been assumed that this change would be similar in magnitude to previous

⁵ http://ec.europa.eu/enterprise/sectors/automotive/files/projects/report-child-occupant-protection_en.pdf

legislative changes, for example the adoption of the 03 series of amendments to UNECE Regulation 44 which led to a step changes in the numbers of GB child occupant casualties.

Using assumptions (1) and (2) above, we estimate the number of casualties that would occur under the policy option as follows:

- 1. We use the take-up estimates (see table 3) to calculate the number of casualties that would be unaffected by the policy. For example, if take-up is assumed to be 35% (best estimate for year 1) we assume that 65% of casualties occurring in the status quo would still occur under the policy option.
- 2. We assume that 35% of casualties that would have occurred under the status quo would now use the new-style CRS. Of these, 90% are expected to be correctly fitted. For these casualties, we would expect to see mitigation in line with the assumptions outlined above (10% mitigation of fatal accidents, 12% serious and 2% slight).
- 3. For the 10% of new-style CRS that are incorrectly fitted, we expect no mitigation in accident numbers.

Using this approach, we estimate the number of casualties that would occur under the policy option. This is then subtracted from the number of casualties that would occur under the status quo in order to estimate the likely benefits of the policy.

The following tables 4-6 illustrate the estimated number of causalities which would be prevented under the policy. To note that table 5 has not been rounded to the nearest life in order to show the small magnitudes involved.

Table 4: Estimated number of lives saved for the period 2015 -2024

Fatal	Low	High	Best
2015	0.1	0.3	0.2
2016	0.2	0.4	0.3
2017	0.3	0.5	0.4
2018	0.3	0.6	0.4
2019	0.4	0.6	0.5
2020	0.5	0.7	0.6
2021	0.5	0.7	0.6
2022	0.6	0.7	0.6
2023	0.7	0.7	0.7
2024	0.7	0.7	0.7

Table 5: Estimated number of seriously injured casualties prevented for the period 2015 -2024

Serious	Low	High	Best
2015	2	5	3
2016	3	7	4
2017	4	8	5
2018	4	9	6
2019	5	10	7
2020	6	11	8
2021	7	11	9
2022	8	11	9
2023	9	11	10
2024	9	11	10

Table 6: Estimated number of slightly injured casualties prevented for the period 2015 -2024

Slight	Low	High	Best
2015	5	27	14
2016	8	33	18
2017	11	38	22
2018	14	44	27
2019	16	49	31
2020	19	54	35
2021	22	54	37
2022	24	54	39
2023	27	54	41
2024	27	54	41

Casualty valuation

In order to monetise the benefit of casualty reductions resulting from the policy, we apply the WebTAG data book⁶ which provides values for the willingness to pay to prevent an accident from occurring. This indicator links a monetary value to each type of casualty severity. The initial WebTAG values are given in 2010 values and prices.

Using the HMT deflator, the initial values were uprated to 2014 prices using the inflator value of 1.082. Then values were increased throughout the appraisal period in line with GDP per capita. For example, the value of saving one life is equivalent to a monetary value of £1.8m in 2014 values and prices.

The following tables 7-9 provide monetised figures for the different casualty severities.

Table 7: Monetised value of lives saved for the period 2015 – 2024

Fatal	Low	High	Best
2015	£250k	£637k	£441k
2016	£382k	£779k	£579k
2017	£519k	£927k	£721k
2018	£662k	£1080k	£869k
2019	£812k	£1242k	£1025k
2020	£968k	£1411k	£1187k
2021	£1127k	£1437k	£1280k
2022	£1292k	£1464k	£1377k
2023	£1462k	£1491k	£1477k
2024	£1490k	£1520k	£1505k

⁶ WebTAG data book - https://www.gov.uk/government/publications/webtag-tag-data-book-may-2014

Table 8: Monetised value of seriously injured casualties for the period 2015 – 2024

Serious	Low	High	Best
2015	£365k	£1141k	£719k
2016	£559k	£1396k	£943k
2017	£760k	£1661k	£1175k
2018	£967k	£1935k	£1415k
2019	£1187k	£2225k	£1669k
2020	£1416k	£2528k	£1934k
2021	£1648k	£2575k	£2086k
2022	£1889k	£2623k	£2243k
2023	£2138k	£2673k	£2405k
2024	£2179k	£2723k	£2451k

Table 9: Monetised value of slightly injured casualties for the period 2015 – 2024

Slight	Low	High	Best
2015	£87k	£436k	£229k
2016	£133k	£533k	£300k
2017	£181k	£634k	£374k
2018	£231k	£739k	£450k
2019	£283k	£850k	£531k
2020	£338k	£965k	£615k
2021	£393k	£983k	£664k
2022	£451k	£1001k	£714k
2023	£510k	£1020k	£765k
2024	£520k	£1040k	£780k

Monetised Costs

There are expected additional costs per unit to manufacture the enhanced seats. These costs also include design and product development costs to manufacturers. Research by the European CHILD project $(2008)^7$ estimates that per unit costs to manufacturers is between £0.20 and £3.27.

There is the additional cost to consumers who purchase the new car seats. It is estimated that the enhanced design of the car seat could justify additional retail price increases. Information provided by industry to TRL would suggest that consumer price is expected to include a 10-30% uplift on the manufacturing unit cost to take account of other business costs. Therefore, this price represents the additional resource cost to the economy of manufacturing the new type of car seat.

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⁷ European CHILD project – Visvikis et al 2008

Table 10 represents the total costs inclusive of the mark up prices faced by consumers undiscounted throughout the 10 year appraisal period. The increase in costs, is linked to the increase in uptake for the new car seats, as referenced by table 3.

Table 10: Total monetised costs for the period 2015 – 2024

Mark up in (%)	Lower (10%)	Upper (30%)	Best (20%)
Year	£0.22	£4.25	£2.24
2015	£67.3k	£3.3m	£1.2m
2016	£101.0k	£3.9m	£1.5m
2017	£134.6k	£4.6m	£1.9m
2018	£168.3k	£5.2m	£2.2m
2019	£202.0k	£5.9m	£2.6m
2020	£235.6k	£6.5m	£2.9m
2021	£269.3k	£6.5m	£3.1m
2022	£302.9k	£6.5m	£3.2m
2023	£336.6k	£6.5m	£3.4m
2024	£336.6k	£6.5m	£3.4m

Summary of Monetised Costs and Benefits

Table 11 represents the discounted costs, benefits and net value of each monetised factor throughout the 10 year appraisal period. These figures are for the best estimate scenario.

Table 11: Discounted costs, benefits, and net value for the 10 year appraisal period.

Year	Cost to purchase the car seat	Total Costs	Reduction in fatal casualties	Reduction in serious casualties	Reduction in slight casualties	Total Benefits
2015	£1.2m	£1.2m	£0.4m	£0.7m	£0.2m	£1.4m
2016	£1.5m	£1.5m	£0.6m	£0.9m	£0.3m	£1.8m
2017	£1.8m	£1.8m	£0.7m	£1.1m	£0.3m	£2.1m
2018	£2.0m	£2.0m	£0.8m	£1.3m	£0.4m	£2.5m
2019	£2.2m	£2.2m	£0.9m	£1.5m	£0.5m	£2.8m
2020	£2.4m	£2.4m	£1.0m	£1.6m	£0.5m	£3.1m
2021	£2.5m	£2.5m	£1.0m	£1.7m	£0.5m	£3.3m
2022	£2.6m	£2.6m	£1.1m	£1.8m	£0.6m	£3.4m
2023	£2.6m	£2.6m	£1.1m	£1.8m	£0.6m	£3.5m
2024	£2.5m	£2.5m	£1.1m	£1.8m	£0.6m	£3.5m

Table 12: Net present value of the policy

	Best	Low	High
NPV	£6.1m	-£12.6m	£18.4m

The policy's net present value under the central estimate is £6.1m which indicates that the policy would bring more benefits than costs.

Non-monetised Impacts

There may be some business benefits from being able to manufacture and sell the enhanced car seat, especially if businesses are also able to export the products. We do not have sufficient data to monetise the benefit to manufactures from increased exports. Other business benefits are likely to be sectoral: Other sectors or businesses which only sell the older style car seats may lose out, as consumers gradually turn to the new enhanced child car seats.

Wider impacts

We do not expect there to be disproportionate impacts on small and micro businesses as this measure is deregulatory. Small and micro businesses will not have to manufacture child restraints to the new standard, or design new child restraints.

It is not anticipated there will be any increased burden on the justice system as there is no new offence created or increased enforcement expected as a result of the proposed changes.

Equality Test

The measure should benefit young children who travel in vehicles.

In its initial assessment of the impact on equality of this measure, the Department of Transport has concluded that it does not create or increase any unlawful discrimination, harassment or victimisation of any particular group by gender, race, religion, ethnicity, sexuality, sexual orientation or disability. It is a specific measure aimed at increasing the safety of all young children in Great Britain.

One-in, Two-Out

Not in scope of OITO because this is an EU-derived measure. There is no gold plating and it is not being implemented early.