

‘What works’ in organisational change and business improvement?

Key findings and implications for practice

A Summary of two Rapid Evidence Assessments

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Research, Analysis and Information Unit, NPIA

national **AGENCY** POLICING

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Introduction

The police service is currently facing a considerable challenge: to maintain service delivery in the light of substantial budget cuts. The service needs to be able to respond flexibly to adapt to the economic climate. Many forces are adopting business improvement techniques to examine current practices and explore where there may be scope to change processes to release savings. In some cases this requires large scale organisational change, shifting from operating in a culture where resources were plentiful and financial management was the preserve of headquarters staff, to one where they are scarce, tightly controlled and all staff are being asked to take some responsibility for efficiency savings.

The NPIA's Research Analysis and Information Unit were commissioned to establish what is known about successful organisational change and business improvement to support the changes forces are being asked to make and inform NPIA programme activity in this area. This paper summarises key findings from two rapid evidence assessments (REAs) and presents emerging evidence for successful change programmes. The REAs (available here – insert links) are focussed on identifying robust evaluative evidence which could highlight key enablers for successful change. REAs use systematic review methods to search for and critically appraise existing research. They are not as broad as full systematic reviews, they tend to search fewer databases and exclude grey literature, so producing quicker results.¹

One REA focussed on identifying existing reviews of organisational change, while the other focussed on identifying evaluative evidence of any type of formal business improvement technique (e.g. LEAN, Six Sigma, Continuous Improvement). The REAs were conducted over a two-month period, following systematic principles, but could not be exhaustive and are likely to be biased towards published sources rather than grey literature. The time constraints resulted in a tightly restricted scope, limited to published evidence for which

¹ For more information on REAs see the Government Social Research REA toolkit (<http://www.civilservice.gov.uk/my-civil-service/networks/professional/gsr/resources/gsr-rapid-evidence-assessment-toolkit.aspx>).

electronic abstracts were available and contained within databases held by the National Police Library² or obtainable from the British Library. In addition, strict inclusion criteria were applied so that only the evidence meeting minimum requirements for inferring a causal link were included³.

Key implications

Indications from two rapid evidence assessments suggest that change programmes may be more successful when:

- Staff are actively engaged in the change process: they feel change is something done with them, not done to them;
- Potential obstacles to change are identified, and mitigated for, before the changes are made;
- Staff are supported by a consistent leadership team throughout the change process;
- Sufficient resources are available to those managing the change project to ensure delivery.

Practically, you may want to consider:

- How you can ensure early, and continued consultation with business areas likely to be impacted by your business change programmes;
- That you talk to staff on the front line about any barriers they see to proposed changes, and how to demonstrate that you have responded to these issues through adapting your programme plans or providing other support;
- How you can ensure a consistent and supportive management structure is in place for the duration of the change programme;
- How you can ensuring your change programme clearly identifies its resource requirements and is provided with the necessary time/ money/ people to achieve its aims.

Above all:

- Whichever approach to change you adopt, ensure you follow each step of the approach and remember to properly assess your benefits.

² Staff at the National Police Library searched the following databases: CSA Illumina; Emerald/ Emerald Management First; EBSCO Host; Medline; Web of Knowledge/ Web of Science.

³ Full details of the search strategy including databases searched and inclusion/exclusion criteria are set out in Annex C.

Summary of findings

- Robust experimental evidence in the area of organisational change and business improvement was found to be very limited.
- For the first evidence review no date limit was applied and 800 abstracts were searched, resulting in five reviews being included, a further six reviews met the inclusion criteria but could not be obtained by the cut off date. For the second review over 11,000 abstracts across a 20 year period were searched, identifying only 36 impact studies that met the inclusion criteria.
- After reviewing the evidence it was not possible to make any causal statements about 'what works' in organisational change or business improvement. Similarly, no specific factors could be said to be 'critical' to successful change.
- Since no robust causal evidence was identified, the second review focused on simple single-site before-and-after comparisons. Studies meeting these criteria were reviewed and potential factors associated with promising findings highlighted.

Potential enablers for continuous improvement

- Engagement was identified as a promising enabler for continuous improvement. The importance of staff feeling actively involved in changes (that changes are *made with* not *done to* staff) and frequent, relevant organisational communication are highlighted as aiding successful implementation of change programmes.
- Contextual factors were also found to be a promising enabler for CI. Evidence suggests that tailoring interventions to address prospectively identified barriers to change can lead to more successful implementation of change programmes.
- Consistent evidence was found to suggest leadership is an important enabler for successful CI, however the design of the studies which

examined leadership do not allow us to make causal statements. Important elements of leadership are: involving staff in decisions, providing staff with direct support from supervisors and ensuring stability of supervision.

- Evidence for resourcing as a continuous improvement enabler was consistent, but not causal due to the design of the studies examining this factor. Evidence suggests that a severe lack of financial and personnel resources can be a barrier to successful change, but on its own resourcing is not enough to create successful change. In practical terms, this means that throwing resources at a problem is not likely to solve that problem; change needs to be managed.
- No evidence was found for the following potential enablers: measuring outcomes and benefits and methodology and rigour.
- Annex A provides a table summarising evidence for those potential success factors identified by practitioners with continuous improvement expertise. This table contains more detail on these factors than the overall summaries of the evidence reviews. It was constructed after returning to individual papers to extract as much detail on potential success factors and their practical implications as possible, in order to frame the evidence in the most helpful way for police practitioners.

Approaches to organisational change and business improvement

- Numerous approaches to organisational change and business improvement were identified in the searches however, all of the approaches follow a broadly similar iterative approach based on:
 - Identifying a problem;
 - Assessing how to resolve the problem;
 - Acting on your assessment, and;
 - Evaluating the impact of your solution.
- While different tools and approaches may be used in assessing the problem or collecting evidence, the overall approach of these programmes is very similar (see Annex B).

- None of the included papers empirically compared the impact, or relative merits of, different approaches to OC/BI (e.g. Six-Sigma compared with Just-In-Time, Lean, Kaizen, etc.), although arguably these are so similar in approach that any comparison would be inappropriate.
- Essentially all the problem solving type approaches identified follow the 'Deming cycle' of PDSA (plan; do; study; act – formerly PDCA: plan; do; check; act)⁴. Measurement and assessment of variance is an integral part of the 'Deming cycle' (otherwise known as statistical process control) and could be considered as the basis of all the approaches.
- Developing sufficient analytical capability to collect baseline data and evaluate the impact of any change is frequently overlooked as a key aspect of any business improvement programme.
- Analytical capability is inherent to any Deming inspired approach: without it organisational improvement cannot take place. Though it is implicit it was not highlighted as a standalone critical success factor.

Conclusion: organisational change as an extension of problem-solving?

- Organisational change and business improvement in policing can sensibly be viewed as an extension of existing problem-solving capability already well established in parts of policing business (e.g. NIM tasking and coordinating, neighbourhood policing).
- Successfully embedding continuous improvement within the police service can build on existing problem solving and analytical capability, focusing on different areas of police business.

⁴ <http://en.wikipedia.org/wiki/PDCA> accessed 15/03/11

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Annex A - Potential enablers for Continuous Improvement

The organisational enablers in this table are based on a series of 'critical success factors' for continuous improvement programmes that the NPIA Continuous Improvement team identified based on practitioner experience

ORGANISATIONAL ENABLER	SUMMARY OF EMERGING EVIDENCE	LEVEL OF EVIDENCE
<p>LEADERSHIP <i>Top level engagement, openness and active participation. Removal of blame and encouragement to identify issues to be rectified in accordance with the strategic imperative/ objectives of the organisation.</i></p>	<p>Leadership is specifically mentioned as a facilitator in a number of different studies. Little information is given about the <i>specific</i> nature of successful leadership styles however, stability of supervision throughout implementation of change together with direct support from supervisors carrying out 'on-the job' training and staff involvement in decisions were associated with more successful change in one study¹.</p> <p>The issue of staff involvement was picked up in another study which suggested that leaders seem to be viewed as <i>less</i> supportive if employees feel that a change is being imposed upon them from above². The same study suggested that change initiated by employees was positively associated with employee morale. Transformational leadership behaviour³, which includes aspects intended to foster a sense of involvement (employee support and encouragement of <i>group</i> goals), is thought to be associated with reduced employee cynicism⁴.</p>	<p>CONSISTENT – NOT CAUSAL <i>Three reviews conducted with systematic principles but including non-experimental studies^{5,6,7} and seven other studies identified leadership as a possible success factor but their designs do not allow us to make causal statements^{1 2 4 8 9 10 11}.</i></p>
<p>ENGAGEMENT <i>To ensure that all areas of the force are engaged, with significant focus on front line staff, the police authority and staff associations.</i></p>	<p>The importance of staff feeling actively involved and empowered seems to be a recurring theme. Staff willingness and feelings of active participation in decision making together with having 'room to experiment' and general staff well being are all linked to successful delivery of change¹. One study found that the degree to which staff understood the rationale for the change, felt they had some degree of control over the proposal and felt that their opinions and ideas were being taken into account was positively associated with their acceptance of the change¹².</p> <p>A perceived lack of autonomy may have some serious side effects. A three-year quasi-experiment focussed on the effects of LEAN implementation found that LEAN reduced employees' organisational commitment, reduced their 'role based self efficacy' (i.e. confidence to carry out proactive tasks, use their initiative or challenge the status quo) and increased job depression (the psychological strain experienced by employees)¹³. These negative effects were thought to be at least partly attributable to <i>declines</i> in perceived work characteristics (job autonomy, skill utilization and participation in decision making).</p> <p>A further study found that organisational change can have negative impacts on employee well being. In this study successful change was found to increase the job strain (stress) reported by employees¹⁴. Interestingly, role clarity (as oppose to social support) was found to be a more effective in easing this stress.</p> <p>Organisational communication (including perceptions of direct communication with supervisors and degree to which communication is perceived as timely and comprehensive) was found to be the strongest influencing factor on self reports of job performance (including reported</p>	<p>PROMISING Promising organisational enablers are those where the level of certainty from available evidence is too low to support generalisable conclusions but where there is some empirical basis for predicting that further research could support such conclusions.</p> <p><i>A review¹⁵ and four studies^{4 12 11 13} identified engagement as a possible success factor, but the designs of these studies do not allow us to make causal statements.</i></p>

ORGANISATIONAL ENABLER	SUMMARY OF EMERGING EVIDENCE	LEVEL OF EVIDENCE
	<p>effectiveness, quality, quantity, efficiency and opportunities to be innovative) in one study⁴. This does not necessarily mean that strong communication <i>per se</i> results in improved job performance but rather positive communication and consideration of staff could be symptomatic of a wider organisational culture that values staff and encourages high performance.</p> <p>A review using unspecified sift criteria¹⁵ found that knowledge transfer and knowledge management (including skills and expertise) were mentioned as success factors (alongside effective communication, education and training) in 20 studies of unknown quality.</p>	
<p>RESOURCING (& SUSTAINABILITY) <i>Identification and selection of the right people with the right skills to understand and deliver the desired outcomes.</i> <i>Development of a core team to remain in place to ensure lessons are learned and methodology is embedded, creating sustainable change.</i></p>	<p>Resources: One study found that extra financial and personnel resources were <i>not</i> a determining factor in successful change¹. Conversely lack of resources <i>was</i> identified as a <i>major barrier</i> in a separate study although other barriers (including turnover, difficulty working across departments and lack of administrative support) were also cited, making it difficult to isolate resources alone as a determining factor in successful change¹⁶. Rather, evidence suggests that a severe lack of resources can be a barrier but that simply throwing resources at the problem without appropriate leadership, staff participation etc. is not enough to create successful change.</p> <p>Sustainability: In ineffective interventions ‘distracting factors’ such as high sickness absence, high staff turnover, feelings of working under pressure and the introduction of multiple simultaneous change projects are all highlighted as potential barriers to change¹.</p> <p>In some cases a high person-organisation ‘fit’ (i.e. congruence between an individuals preferred organisational culture and that they perceive around them) was found to be weakly associated with stronger organisational commitment and intention to stay during/following periods of change¹⁷.</p> <p>One review using unspecified search criteria¹⁵ and two other studies^{18,19} suggested training was a potential success factor. Of these papers, one suggested that training may improve employees’ CI orientation¹⁹. This paper also highlights the importance of a change of thinking in the way that employees construe their work, in particular being more flexible in terms of what they regard as part of their job.</p>	<p><i>Multiple studies but their designs do not allow us to make causal statements.</i></p>
<p>MEASURING OUTCOMES & BENEFITS <i>Clear identification and communication of desired goals and outcomes.</i> <i>Explanation of performance, financial and efficiency targets to improve public confidence.</i></p>	<p>No evidence for this factor was identified in the REAs.</p> <p>However, outside of the REAs, a systematic review found evidence that problem-solving approaches to policing, such as problem-oriented policing, have a positive impact on the problems they target²⁰.</p>	<p><i>No explicit evidence found.</i> <i>A separate systematic review²⁰ found evidence that problem-oriented policing works.</i></p>

ORGANISATIONAL ENABLER	SUMMARY OF EMERGING EVIDENCE	LEVEL OF EVIDENCE
<p>METHODOLOGY & RIGOUR <i>Adherence to the principles of the approach, evidenced use of data to support developments and outcomes.</i></p>	<p>Though implicit in, and fundamental to, all OC/BI approaches, these factors were not explicitly addressed by any study. However, one review using unknown sift criteria found monitoring and evaluation of performance and performance measurements was noted as success factors in 16 studies¹⁵.</p>	<p><i>No explicit evidence found.</i></p>
<p>CONTEXTUAL FACTORS</p>	<p>One systematic review based on evidence from 26 randomised control trials with control groups suggests that tailoring interventions to address prospectively identified barriers to change can lead to more successful implementation of your change programme²¹. This systematic review identified seven main barriers to consider:</p> <ol style="list-style-type: none"> 1. Administrative constraints (lack of time/ staff/ money)²² 2. Clinical uncertainty (in a policing context this might be working in a fast paced, dynamic and uncertain environment) 3. Patient expectations (in a policing context this might be officer/public expectations) 4. Information management 5. Financial disincentives 6. Negative staff attitudes²³ 7. Anxiety about changing practice²⁴ 	<p>PROMISING</p>
	<p>Public/Private sector contextual issues <i>Organising arrangements:</i> One meta-analytical study found organizing arrangements (including formal structure, goals, administrative procedures, and reward systems) seem to be more readily changed in the private sector than in the public sector²⁵. This suggests some aspects of organisational change may be harder to achieve in the public sector. A review using unspecified sift criteria found <i>organisational structure</i> was mentioned as a success factor in 19 studies of unknown quality¹⁵.</p> <p><i>Technology:</i> One meta-analytical study found it can also be harder to change technology and the physical setting subsystems of public sector organizations than in the private sector²⁵. Despite this, the study found no overall significant differences between the public and private sectors regarding the amount of change achieved.</p>	<p><i>Multiple studies but their designs do not allow us to make causal statements.</i></p>

¹ REA 2: Berkhout et al (2009) – Before and after study

² REA 2: Griffin et al (2004) - Longitudinal survey design

³ Transformational behaviour includes: articulating a vision of future; fostering acceptance of group goals; communicating high performance expectations; providing intellectual stimulation; role modelling and supporting employees.

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- ⁴ REA 2: Bommer et al (2005) - Longitudinal survey design
 - ⁵ REA 1: Wardhani et al (2009) - Literature review conducted with systematic principles
 - ⁶ REA 1: Boonstra & Broekhuis (2010) – Literature review conducted with systematic principles
 - ⁷ REA 1: El Shenawy et al (2007) - Literature review conducted with systematic principles
 - ⁸ REA 2: Waclawski (2002) - Before and after study
 - ⁹ REA 2: Grunberg et al (2008) – Longitudinal survey design
 - ¹⁰ REA 2: Battilana et al (2010) – Before and after study
 - ¹¹ REA 2: Condrey et al (2005) – Longitudinal survey design
 - ¹² REA 2: Gagne et al (2000) – Before and after study
 - ¹³ REA 2: Parker (2003) - Quasi-experimental field study with a non-equivalent control group
 - ¹⁴ REA 2: Korkuna et al (2003) – Before and after study with outcomes measured at multiple time points
 - ¹⁵ REA 2: Naslund (2008) - Review using unspecified search criteria
 - ¹⁶ REA 2: Garrad et al (2006) - Post-intervention qualitative analysis of a cohort receiving CME training
 - ¹⁷ REA 2: Meyer et al (2010) - Before and after study
 - ¹⁸ REA 2: Rosen et al (2006) – Before and after study with outcomes measured at multiple time points
 - ¹⁹ REA 2: Coyle- Shapiro (2002) – Contains two studies, one longitudinal and one before and after
 - ²⁰ Additional review: Weisburd et al (2008) - Systematic review
 - ²¹ REA 1: Baker et al (2010) - Systematic review
 - ²² This also links to the resourcing and sustainability success factor
 - ²³ This also links to the staff engagement success factor
 - ²⁴ This also links to the staff engagement success factor
 - ²⁵ REA 2: Robertson and Seneviratne (1995) - Meta-analytical study

Annex B - Similarities in business improvement approaches

While there are important differences in the original purpose, emphasis and ideas behind the business improvement approaches, they all broadly follow an iterative approach based on: identifying a problem; assessing how to resolve the problem; acting on your assessment, and; evaluating the impact of your solution. Different tools and approaches may be used in assessing the problem and collecting evidence, but the overall approach is similar. Seen in this light, organisational change and business improvement in policing can be viewed as essentially an extension of police problem-solving approaches that are already used into different areas and processes.

Approach ¹	Phases			
	1	2	3	4
<i>Deming cycle</i>	Plan	Do	Study	Act
<i>Six Sigma</i>	Define	Measure	Analyse	Improve, Control
<i>Lean</i> ²	Sift, sort	Sweep	Standardise	Sustain
<i>Kaizen</i>	Plan	Do	Study	Act
<i>QUEST/ CI</i>	Identify issues, develop business case	Detailed solution design	Measuring outcomes	Presenting benefits
<i>Problem solving/ Problem-oriented policing (POP)</i>	Scan	Analyse	Respond	Assess
<i>National Intelligence Model</i> ³	Assets/ Information Sources/ Information and Intelligence Recording [SCAN]	Research, Development and Analysis/ Intelligence Products [ANALYSE]	Strategic and Tactical Tasking and Coordination/ Tactical Resolution [RESPOND]	Operational Review [ASSESS]

¹ Of papers included in REA2, one examined the impact of a Kaizen improvement, four examined the application of 'Lean methodology', and five detailed the use of the Six-Sigma DMAIC model. No papers meeting our inclusion criteria were found that examined Total Quality Management (TQM), Just-In-Time (JIT), or Business Process Reengineering (BPR).

² Uses a variety of tools including the Deming cycle, value stream mapping and the 5S's.

³ Adapted from <http://www.npia.police.uk/en/9015.htm> accessed 15/03/11.

Annex C - Details of the searching and sifting criteria

Search terms

For the first REA systematic searches were carried out to identify systematic reviews examining organisational change across all sectors. For the second REA systematic searches were carried out to identify evaluative studies (with a minimum of a pre-post measurement in a single site) that addressed the following questions:

- I. Search 1: What are the critical success factors in delivering organisational change?
- II. Search 2: What are the critical success factors and barriers in delivering business improvement?
- III. Search 3: What evidence exists for the specific approaches to and examples of business improvement?

Relevant databases held by the National Police Library were searched along with internet databases¹ for both REAs. There were no date limits on the search for REA 1, but for REA 2 time constraints and the volume of abstracts identified from pilot searches led to the searches being restricted as follows: only title/abstract was searched; dates for inclusion were limited to 1991-2011; only English language papers were included; only articles from journals or peer reviewed journals with full available abstracts were included.

The search criteria are set out below.

REA 1 - A review of reviews on 'what works?' in organisational change:
change AND organisation* OR continuous improvement
AND evaluat* OR assess* OR what works OR impact OR success*
AND systematic review OR meta analysis

REA 2 – What works in organisational change and business improvement? :

- I. Search 1:
"organisational change" OR "organizational change"
AND evaluat* OR assess* OR what works OR impact OR success* OR sustain*
OR effect*
- II. Search 2:
"business improvement" OR "business efficiency" OR "organi*ation*
improvement" OR "organi*ation* efficien*"
AND evaluat* OR assess* OR what works OR impact OR success* OR sustain*
OR effect*
- III. Search 3:
"Lean process" OR "Lean method" OR Lean program*" OR Lean technique*" OR
"Lean production" OR "continuous improvement" OR "system* thinking" OR
"Kaizen" OR "Six-Sigma"
AND evaluat* OR assess* OR what works OR impact OR success* OR sustain*
OR effect*

Search results

Table 1: Search results for REA 1 - A review of reviews on 'what works?' in organisational change

Database/website	Total references	Included after first sift	Included with electronic access	Included after full paper examined
Emerald	10	1	1	1
Web of Science	301	5	3	1
Medline	120	3	1	1
EBSCO	10	1	0	0
CSA	27	2	1	1
Sub-total for databases	468	12	6	4
Institute of Employment Studies	6	0	0	0
Institute of Work Psychology	14	0	0	0
Work Foundation	15	0	0	0
Campbell Library	168	0	0	0
Cochrane Library	123	1	1	1
EPPI Centre	0	0	0	0
Chartered Institute of Professional Development	3	0	0	0
Sub-total for online resources	329	1	1	1
TOTAL	797	13	7	5

Table 2: Search results for REA 2 - What works in organisational change and business improvement? (All three searches)

	Total references identified (total abstracts sifted)	Papers included after first sift	Papers received by cut off date	Papers included after full paper examined
Database searches				
CSA	1,984	19	10	6
EBSCO	1,732	30	20	3
Emerald	2,432	27	24	4
Medline	1,159	32	23	10
Web of Science	3,846	70	57	13
Sub-total	11,155	178	134	36
Online searches				
Campbell Library	0	0	-	0
CIPD*	0	0	-	0
Cochrane Library	2	0	-	0
EPPI Centre	0	0	-	0
Institute of Employment Studies	4	0	-	0
Institute of Work Psychology	2	0	-	0
Work Foundation	0	0	-	0
Sub-total	8	0	-	0
TOTAL	11,163	178	134	36

* Chartered Institute of Professional Development

Sifting

REA 1:

Duplicates were removed and remaining abstracts were sifted for relevance using the criteria set out below. From 797 references initially identified by the searching, only 5 papers were included in the final review. Due to time constraints papers which were not available electronically through the National Police Library were not included and this resulted in 5 studies not being included in the review.

REA 2:

Across all three searches a total of 11,155 potentially relevant papers were identified and sifted for relevance using the criteria set out for each search below (tables 4, 5, and 6). After the removal of duplicates, a total of 178 papers were called. Due to the limited time available to conduct this REA, only papers available electronically through the National Police Library or received from the British Library by the 4th March 2011 were included. By our cut off date, 134 of the 178 papers had been received. After examining these 134 full papers, a total of 36 papers met the inclusion criteria specified below (tables 3, 4 and 5).

Sifting criteria

Table 3: Sift criteria for REA 1 – A review of reviews on ‘what works?’ in organisational change

The aim of sifting is to identify systematic reviews or meta-analyses of organisational change, change programmes, or continuous improvement programmes. We are interested in papers from a variety of areas, not just policing.

	QUESTION	ANS.	ACTION
Q1	Is the paper a systematic review?	No	Exclude
		Yes	Go to Q2
		Unclear	Cannot exclude
Q2	Is the paper about: <ul style="list-style-type: none"> • Organisational change; or • Change programmes; or • Continuous improvement programmes 	No	Exclude
		Yes	Include
		Unclear	Exclude
If paper is included then:			
Tag whether:	Organisational change; change programme; or continuous improvement programme		

Notes:

Exclude protocols for systematic reviews

Exclude theoretical papers and literature reviews

Table 4: Sift criteria search 1/REA 2 - What works in organisational change and business improvement?

The aim of sifting is to identify evaluations of organisational change, change programmes, or continuous improvement programmes. Whilst this sift is not specifically looking for systematic reviews, any that are found should be kept in as they may be relevant to another REA we are conducting.

	QUESTION	ANS.	ACTION
Q1	Is the paper about: <ul style="list-style-type: none"> • Organisational change; or • Change programmes; or • Continuous improvement programmes 	No	Exclude
		Yes	Go to Q2
		Unclear	Exclude
Q2	Is the paper a systematic review or an evaluation to level 2 or above on the Maryland Scale (pre and post measurement)	No	Exclude
		Yes	Include
		Unclear	Exclude
If paper is included then:			
Tag	(1) Methods: Is the paper (a) level 3 plus (quasi experiment, randomised control trial, systematic review) OR (b) level 2 (before and after study, without control group).		
	(2) Topic: Organisational change OR Continuous Improvement		
	(3) Area: e.g. business, policing, healthcare, etc.		

Notes:

Exclude theoretical papers and literature reviews

Exclude protocols for systematic reviews

Table 5: Sift criteria for search 2/REA 2 - What works in organisational change and business improvement?

The aim of sifting is to identify papers looking at business or organisational improvement/ efficiency interventions. Papers should evaluate or assess the impact/ success or the sustainability of the intervention. We are interested in papers from a variety of areas, not just policing.

	QUESTION	ANS.	ACTION
Q1	Is the paper about a: <ul style="list-style-type: none"> (a) business or organisational (b) improvement or efficiency procedure/ programme/ intervention? 	No	Exclude
		Yes	Go to Q2
		Unclear	Exclude
Q2	Is the paper a systematic review or an evaluation to level 2 or above on the Maryland Scale (pre and post measurement)	No	Exclude
		Yes	Include
		Unclear	Exclude
If paper is included then:			
Tag	(1) Methods: Is the paper (a) level 3 plus (quasi experiment, randomised control trial, systematic review) OR (b) level 2 (before and after study, without control group). (2) Area: e.g. business, policing, healthcare, etc.		

Notes:

Exclude theoretical papers and literature reviews – assessment/ evaluation of the programmes are of interest.

Exclude protocols for systematic reviews

Table 6: Sift criteria for search 3/REA 2 - What works in organisational change and business improvement?

Search for the following in title and abstract only:

- i. Lean OR continuous improvement OR system* thinking OR Kaizen OR quality management OR Six-Sigma
- ii. AND evaluat* OR assess* OR what works OR impact OR success* OR sustain* OR effect*

NOTE: The above approaches to organisational change were included after an initial sift of the literature in this field. Although, Business Process Re-engineering (BPR) was not used as a specific search term, a number of abstracts of papers discussing BPR were identified from this search and were sifted in.

We are interested in policing and non-policing research, as well as both individual and review papers.

	QUESTION	ANSWER	ACTION
Q1	Is the paper about: <ul style="list-style-type: none"> • Continuous improvement; or • Quality management; or • Kaizen; or • The "Lean" method; or • The "Systems thinking" method or • Six-Sigma 	No	Exclude
		Yes	Go to Q2
		Unclear	Cannot exclude
Q2	Is the paper a systematic review or an evaluation to level 2 or above on the Maryland Scale (pre and post measurement)	No	Exclude
		Yes	Include
		Unclear	Exclude
If paper is included then:			
Tag whether:	(1) Methods: Is the paper (a) level 3 plus (quasi experiment, randomised control trial, systematic review) OR (b) level 2 (before and after study, without control group). 1. Area: Kaizen OR Quality management OR Continuous improvement OR Lean OR Systems thinking.		

Notes:
 Exclude theoretical papers and literature reviews.
 Exclude protocols for systematic review

Critical appraisal

Studies were critically appraised in three key ways:

1. Assessing the level (quality) of evidence using the Maryland Scale
2. Assessing the overall transparency of studies in terms of the methods used
3. Assessing the overall validity of the methods used in terms of the quality, consistency and relevance of selected outcome measures

The Maryland Scale of Scientific Methods (MSSM) ¹ was used to assess the overall level of the evidence, and most importantly whether any causal relationship between claimed benefits and the OC/BI programme could be inferred from each study. A limited number of studies enabled us to establish a causal link, which meant that the REAs have had to incorporate evidence from papers with other study designs. Some types of research design (particularly qualitative studies) do not fit neatly into the Maryland Scale classification, and subsequently further critical appraisal of these studies is required.

Studies were also assessed in terms of how transparent they were in describing their methods. Some studies were weak in terms of their transparency, for example, in using different people to respond to the baseline and post-change survey and one study used different methods to administer the baseline and comparison survey. Some studies were vague about the organisational change itself, what it involved and whether it was a success or not.

Studies were also examined in terms of their validity for making judgements about OC/BI programmes. The reliability and generalisability of outcome measures were considered. For example, many studies used perception and self-reported data rather than specific empirical measures to assess the impact of programmes. Broadly speaking our confidence in studies based on self reported or perception data findings (and the weight we give their conclusions) is more limited than for studies with a clear empirical basis. Critically, some studies were unclear about whether benefits claimed as a result of interventions were projected or had actually been achieved, flagging concerns about their overall validity and reliability.