Cochrane

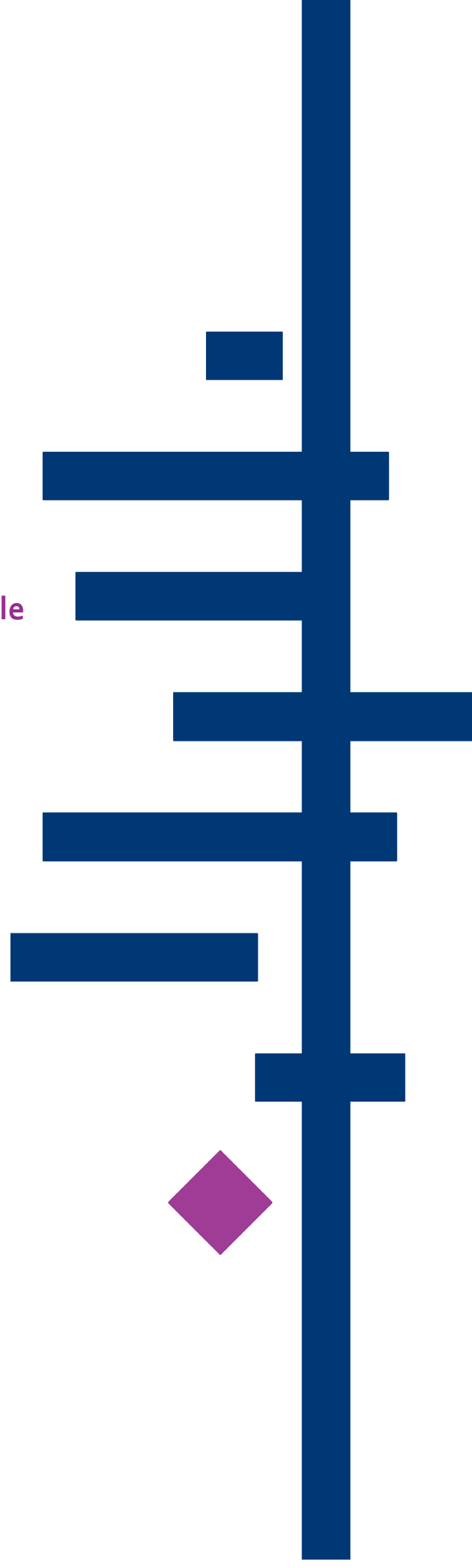# Structure and Function Review

Paper 1: Creating a more sustainable review production system for the Cochrane Library

[OPEN ACCESS]

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1 Executive Summary

This paper has been produced as one element of the Cochrane-wide Structure and Function Review, and aims to address aspects of three of four *Strategy to 2020* goals that relate to our review production systems and the impact of Cochrane Reviews.

- Goal 1: the production of high-quality evidence syntheses that inform decision makers in health.
- Goal 2: ensuring access to and use of the syntheses we have produced.
- Goal 4: ensuring a successful and flourishing Cochrane community.

The paper will focus particularly on the review production systems, and therefore the work of Cochrane Review Groups (CRGs), their relationships with one another, and with the Central Executive Teams. However, it is important to note that a Structure and Function project is also ongoing in relation to the Cochrane Methods Groups. Some proposals made in th paper reflect this work. In addition, this paper accompanies additional papers that address the structure and function of 'geographic' groups such as Centres (paper 2) and also Fields (paper 3).

Over the past two decades, Cochrane has achieved success and widespread international recognition, due predominantly to its production of a unique collection of high-quality systematic reviews, the *Cochrane Database of Systematic Reviews (CDSR).* Through the commitment and expertise of its contributors and teams, the CDSR has grown to over 7,000 reviews, many of which have been updated, and it continues to expand at a rate of 60 to 80 new and updated reviews per month. Cochrane is widely recognized as producing high-quality reviews,[5] due in large part to its rigorous methodological standards and the efforts of Cochrane Review Groups (CRGs) in support of review development.

Cochrane Reviews have a significant impact on health care across the world. This impact has been generated in multiple ways, and has resulted in individual reviews challenging conventional wisdom, for example on neuraminidase inhibitors,[1] deworming programmes,[2] and the use of tranexamic acid for reducing mortality in cases of trauma,[3] and programmes of reviews around a subject area that change practice and policy through being incorporated into guidelines.

Success, however, brings a number of challenges, many of which are highlighted in our *Strategy to 2020*, and were identified earlier as part of the previous review of Structure and Function,[4] and the 2013 CRG monitoring report.[5] These challenges are mainly related to keep producing timely and consistently high quality reviews (see "Current and future challenges" below), and in this document we build on what we have learned in order to present proposals that address relevant issues that will affect the quality assurance and review production systems.

Compared to the situation in 1993, Cochrane now exists within a much more competitive environment: a growing number of systematic reviews is published every year, and many organizations are competing for

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[1] Jefferson T, Jones MA, Doshi P, Del Mar CB, Hama R, Thompson MJ, Spencer EA,Onakpoya IJ, Mahtani KR, Nunan D, Howick J, Heneghan CJ. Neuraminidase inhibitors for preventing and treating influenza in adults and children. Cochrane Database of Systematic Reviews 2014, Issue 4. Art. No.: CD008965. DOI: 10.1002/14651858.CD008965.pub4.

[2] Taylor-Robinson DC, Maayan N, Soares-Weiser K, Donegan S, Garner P. Deworming drugs for soil-transmitted intestinal worms in children: effects on nutritional indicators, haemoglobin, and school performance. Cochrane Database of Systematic Reviews 2015, Issue 7. Art. No.: CD000371. DOI: 10.1002/14651858.CD000371.pub6.

[3] Ker K, Roberts I, Shakur H, Coats TJ. Antifibrinolytic drugs for acute traumatic injury.Cochrane Database of Systematic Reviews 2015, Issue 5. Art. No.: CD004896. DOI: 10.1002/14651858.CD004896.pub4.

[4] http://community.cochrane.org/sites/default/files/uploads/inline-files/CRG%20Structure%20and%20Function%20consultation%20paper%20DT%20final%205%200_0.pdf

[5] http://editorial-unit.cochrane.org/crg-monitoring

the same funds to produce these reviews.[6] Many of these reviews are clearly of lower quality, but some are comparable to the best Cochrane Reviews.

In addition, reviews are becoming increasingly complex, addressing different types of question beyond that of effectiveness, incorporating new data sources (e.g. non randomized studies, data submitted to regulatory bodies) and new methods (network meta-analysis, individual patient data, qualitative or economic analyses). At the same time decision makers are becoming increasingly demanding about the timeliness of high-quality review production.

CRGs currently function with a high degree of independence and examples of intergroup collaboration are relatively infrequent. In addition, for many Groups, the default position is to accept title requests and substandard submissions even when the work required to convert them into publishable reviews is disproportionately high. It is therefore not surprising that many CRGs report that they are overwhelmed and overstretched, whilst author experience and review quality across CRGs are both inconsistent. Furthermore, the editorial process - largely unchanged over two decades - is seen as being inflexible and cumbersome, leading to low levels of retention of trained and experienced review author teams across many CRGs.

Cochrane evolved as a collaboration, and we are actually highly dependent on one another. We are all elevated by the glory reflected by the high performers, and all undermined collectively when we fail to achieve the high standards we have set ourselves. We have the basis on which to further build success: a large, multiprofessional network of researchers, high levels of commitment, and a vibrant community that continues to engage some of the world's foremost experts in the world of evidence synthesis. However, we need to harness our resources more effectively in order to ensure that we remain relevant and influential, and maintain the quality of our outputs. We need to be outwardly focussed so that we understand the knowledge needs of decision makers (health professionals, policy makers, citizens etc), and also to create an environment that attracts new researchers and provides them with professional and career opportunities.

In this paper we outline a transformation programme that aims to create the basis for a Cochrane review production system that is positioned to have maximum impact on clinical care and in health policy. The proposal has four discrete elements:

1. The creation of a new Editorial Board that can shape and develop strategy and provide oversight of the implementation of the transformation programme and the performance of the Cochrane Library.

2. Proposals to improve governance arrangements and mutual accountability between Cochrane and its groups, and increase transparency.

3. A review of the sustainability of current CRGs allied to the needs of our users. This will seek to deliver recommendations that deliver fewer, larger editorial units that bring CRG teams with shared interests closer together within supported networks, and helps them to match the characteristics of the highest performing groups currently.

4. The implementation of the integrated quality strategy and the delivery of the *Strategy to 2020* goal 1 targets: consistently high quality reviews, produced efficiently, that address the needs and priorities of decision makers. This will include the introduction of a Methods Support Team and initiatives aimed at measuring and recording review quality, and increasing the efficiency of the editorial process.

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[6] http://www.milbank.org/the-milbank-quarterly/current-issue/article/4110/the-mass-production-of-redundant-misleading-and-conflicted-systematic-reviews-and-meta-analyses

We are grateful to those individuals who have attended the various webinars, and who have made important and substantive contributions to our thinking. We have tried to ensure that those contributions are incorporated into this paper, and believe that they make our proposals stronger and more compelling.

The proposals within this paper are consistent with those developed for the Centres and Fields.[7] These incorporate the desire to increase effective co-operation between these groups and CRGs in support of the review production process, to benefit both contributors and our end users.

We want to be able to look back in ten years' time and know that we put into place the measures needed on which to build our continuing success. Our current structure and aspects of the way we work now are simply too fragmented and inconsistent in quality to let us achieve our vision. Therefore, we need a process of transformation that will deliver the review production systems we require, built on viable units with the capacity and skills that will be indispensable in the next few years and beyond.

2 Our vision for this project

We want to ensure a transformed review production system Cochrane-wide that delivers high-quality and timely systematic reviews - reliably and consistently - that are identified as important through robust processes, and so prioritise the needs of decision makers across the world.

3 Current and future challenges to achieve the goals of Strategy 2020

This document aims to describe how we can work together as a community to tackle the current and future challenges, focussing on review production, impact, mutual accountability and governance, transparency, and supporting our people to produce excellent work. In this section, we restate some of the main challenges Cochrane faces.

Goal 1: Producing evidence

Quality is our paramount concern

Achieving consistent, high-quality reviews is essential to Cochrane's continuing success.

Cochrane has invested heavily in the management of quality ever since the screening programme, led by Toby Lasserson (the 'screen team'), was introduced in 2013. A paper published in May 2016 by Matthew Page and colleagues,[8] demonstrated that in terms of reporting standards Cochrane Reviews are superior to non-Cochrane reviews, despite the latter having improved substantially since the last evaluation in 2008. This is consistent with recent audits undertaken by the Cochrane Editorial Unit (CEU) that have demonstrated that there has been a clear improvement in many aspects of quality of Cochrane Reviews. However, our screening programme has identified that review quality challenges are not limited to a small number of high risk CRGs. We now have increasing evidence of reviews being signed off for publication across a substantial group of CRGs that do not consistently meet the high standards we have developed.

In 2015 we initiated changes to the screening process so the quality screening team began to evaluate reviews earlier in the process - including analysis of protocols and review updates - before they were signed

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[7] http://community.cochrane.org/sites/default/files/uploads/inline-files/centres___branches_structure___function_review_-_final_-_june_2016.pdf

[8] Page MJ, Shamseer L, Altman DG, Tetzlaff J, Sampson M, Tricco AC, et al. Epidemiology and reporting characteristics of systematic reviews of biomedical research: a cross-sectional study. *PLOS Medicine* 2016;**13**(5):e1002028.

off by the CRG. These reviews included those that CRGs designated as being of potentially high impact and worthy of focussed knowledge translation activity, and also those where the CRG requested support from the screening team for other reasons. The CEU has also received referrals from the Copy Edit Support service and the Cochrane UK's *Analysis of Review Group Outputs for decisions on dissemination and promotion* (ARGO) meeting. As the CEU screening programme has expanded, it is becoming increasingly clear that inconsistency in relation to the quality of review production is not limited to a handful of CRGs. Some areas such as adherence to protocols, application of GRADE, unit of analysis decisions, and consistency of writing across different sections of the review, are recurrent problems in the majority of the reviews sent to the CEU for screening.

The screening programme is popular with most CRG teams, and attempts by the CEU to scale it back have been strongly resisted. It also represents a considerable investment on the part of Cochrane into the issue of quality improvement (4.2 FTE currently). However, despite the team's efforts it has not succeeded in achieving its aim of rendering itself redundant; instead it has highlighted deep-seated challenges and inconsistencies in the quality of the review production systems across CRGs. Within the next one to two years, it is important that the the CEU role becomes more strategic and less operational and that all editorial teams have the data, skills and capacity to undertake the work of overseeing and managing their review portfolio and production process.

As part of its work, the CEU team has worked closely with a small number of CRGs designated as being at 'high risk', and has supported these Groups in their efforts to implement the changes needed to address specific issues relating to review quality. In addition to screening reviews before signing off, the team has provided regular face-to-face and webinar training sessions, and in some instances a dedicated CEU editor has worked closely with the CRG or provided direct support to editors and other CRG staff. This has led to the implementation of a range of potential solutions, including:

- limiting the number of title submissions being accepted to match resources, and concentrating available resources on the highest priority titles;
- increasing the willingness of CRGs to reject sub-standard submissions at all stages;
- editor training to address knowledge gaps within individual editorial teams.

The recent consultation for the purposes of the Structure and Function project[9] has demonstrated that those working in high-performing CRGs are not enthusiastic about suggestions that they might be expected to work alongside the lower performers to help improve quality, or to manage their performance, both of which are seen as responsibilities of the CEU and the Editor in Chief. The reluctance to embrace the partially decentralised model set out in the description of 'thematic hubs' is understandable given that many Group leaders have a limited time to devote to Cochrane, receive no direct funding from the organization, and wish to use their available time to produce and develop high-quality reviews in their own discipline.

Efficiency of production
Since April 2013, Professor Dame Sally Davies, Head of the UK National Institute for Health Research (NIHR) added her voice to that of many others across the world on the issue of time to publication. Since then, Cochrane has invested heavily in the implementation of a series of technological changes aimed at addressing the challenge of producing high-quality systematic reviews in a timely and efficient manner. The changes include the introduction of an author support tool (Covidence), and investment in Project Transform, which explicitly aims to facilitate study identification ('pipeline') and the execution of key elements of the editorial process (Cochrane Task Exchange and Crowd). During the next two to three years, once these tools have been fully implemented and are widely used, we believe that they will begin to show an impact on the speed and consistency of review production.

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[9] https://community.cochrane.org/sites/default/files/uploads/inline-files/CRG%20consultation%20process.pdf

Currently, however, reducing the time to publication has been challenging. The most recent data taken from Archie shows no overall improvement in the time taken for the production of reviews, which remains an average of 30 months. Whilst it seems to be the case that reviews listed on the prioritisation list are published sooner (average 25 months), an assessment of 'empty' reviews taken to coincide with the Reward / Equator Conference on increasing value and reducing waste in biomedical research suggested that even 'empty' reviews frequently take a similar time to complete.

The causes of delay are certainly multiple, but include:
- review author teams continuing to be predominantly volunteers;
- many CRGs accept more titles than they have the resources or capacity to manage;
- introduction of diagnostic test accuracy (DTA) reviews and newer methods such as network meta-analysis;
- many submissions are of poor quality, but many Cochrane Groups are reluctant to reject work, particularly once a protocol has been published. Cochrane does not have an agreed rejection policy to guide CRGs, and a consequence of these factors is that in many Groups, a large amount of the editorial time is spent on poor quality reviews, leading to lengthy backlogs;
- the CEU screening programme increasing overall time to publication, due mainly to the work undertaken to address issues it has identified.

To address these challenges, Cochrane cannot rely on its technology or 'the crowd' alone. There need to be editorial and process changes also – Cochrane's editorial process has not changed substantially for 20 years, and still assumes that most review author teams require extensive support at all stages of the process. This may have been true in 1993 but is no longer so. Many experienced authors want to continue working with Cochrane, but increasingly publish their highest impact reviews elsewhere. Thus, Cochrane ends up losing important reviews and high-quality teams.

To combat these challenges, we propose to trial and introduce different models of the editorial process. We know from our discussions at the mid-year meeting that there is enthusiasm for this within the CRG community, and we propose to pursue this with urgency over the next year.

In addition, there is increasing interest in the development of 'living systematic reviews' - in essence reviews that are updated in 'real time' when new relevant studies are reported either in published articles in scientific journals or elsewhere. This work is currently at an early stage and being led from within Project Transform. Living systematic reviews will need to be carefully defined, with serious consideration of the methodological and publishing challenges.

Therefore, we propose some radical changes to editorial process that may be applied to specific reviews, alongside an incremental approach that can be applied to all reviews; both strategies aiming to deliver substantial improvement in Cochrane's performance in this area.

Better prioritization and management of scope
Since 2006, many Cochrane Groups have engaged in prioritization activities, some on a regular basis. However, this is inconsistent. To be effective, prioritization requires some external engagement with stakeholders, such as citizens or consumers of health care, health professionals, policy makers and guidelines developers. The Priority Setting Methods Group was set up following the Strategic Session on the topic, but to date, there does not seem to have been substantial engagement with CRGs.

The development in 2015 of the Cochrane-wide prioritization list, and the Review Support Programme have increased the level of engagement by Groups, but what is needed is for all Groups to match the work of the higher performers consistently. In addition, the heterogeneity of CRGs means that maintaining a system-wide perspective is an ever-present challenge that we seek to address within the transformation programme described in this paper.

Implementing new methods that enable Cochrane to meet the needs of decision makers more effectively
Cochrane has consistently implemented changes to its reviews as methods have developed. However, the science of research synthesis is becoming increasingly specialized and sophisticated, with increased review complexity (for example: DTA, mixed methods and prognosis reviews) and enhanced methods (e.g. network meta-analysis, new data sources such as regulatory data). It seems inevitable that the pressure to extend the scope of reviews, and implement innovative new methods will continue.

Recent history demonstrates that whilst Cochrane has introduced many changes to its methods, including introduction of the 'Risk of bias' tool, implementation of GRADE, and DTA reviews, progress has characteristically been slower than predicted and more challenging. This highlights the challenge of introducing change and monitoring progress across 52 units, many of which lack editorial capacity or methodological capability or have fragile funding. The challenges are exacerbated by the current lack of funding support experienced by nearly all methods groups. The Strategic Methods Fund may represent a partial solution by making central Cochrane funds available to support the implementation of newer methods that have been approved by the Scientific Committee and are a priority to end users.

Goal 2: Making our evidence accessible

Creating impact: responsiveness to guidelines producers and Health Technology Assessment (HTA) bodies
Whilst there are many examples of CRG teams and review authors working together to complete programmes of reviews in response to requests by national and international guidelines producers and HTA bodies, there are also consistent reports of opportunities being missed. Not all of the blame for this situation lies at the door of Cochrane, but if our organization wants to remain as the evidence source of choice, we need to ensure that teams are positioned to exploit as many opportunities as possible.

This will require many attributes signalled in the previous sections including:

- improved engagement with policy makers and horizon scanning; and
- creation of 'fast-track' capability and capacity where indicated – perhaps through creating larger multi-disciplinary teams, which already exist in some of the high-performing CRGs.

Cochrane Response (part of Cochrane Innovations) was designed specifically to create the capacity and skills to respond swiftly to stakeholders and to produce high-quality evidence syntheses when CRGs were not able to do that themselves. However, this can only form a part of the picture. What is needed is for Cochrane Response and CRG teams to work in partnership in order to deliver the services and products needed by guidelines producers and HTA agencies internationally, and to generate income for both Cochrane and the Groups. The outputs also need to be flexible, covering the range from targeted updates to fully formed new reviews. Cochrane is well placed to deliver such services, but to do so it needs to find more flexible, efficient and effective ways of working.

Goal 4: Building an effective and sustainable organization

Transparency, governance and accountability
The disseminated structure and funding of the organization, along with a lack of built in formal accountability of CRGs to the Editor in Chief's Office, is a major management challenge. Currently there are very limited mechanisms for accountability of CRGs to the Editor in Chief and ultimately to the Chief Executive Officer (CEO) and Governing Board (currently, the Steering Group or CSG) or vice versa – a consequence of the ad hoc and organic way that Cochrane developed.

During 2015 the CEU team worked with colleagues in the community to develop a Memorandum of Understanding (MoU) between the Editor in Chief, Co-ordinating Editors of CRGs, and the CRG host institutions (where appropriate). Substantial progress has been made. We have consulted with the Co-ordinating Editors' Executive, Cochrane's Senior Management Team, Cochrane's legal advisor, and

circulated a final version to the wider group of Co-ordinating Editors. Alongside the Structure and Function proposals, we now intend to complete this work.

In addition, the UK NIHR has also made it clear that it wishes to see the CEU providing more information relating to the individual performance of NIHR-funded CRGs. Given the critical role of its funding of multiple Cochrane Groups, and the high likelihood that its views would be shared by other funding bodies, we believe that a vital element of these proposals is to address these expectations. As part of this work, we believe that it is now important for metrics related to performance of both CRGs and the central teams to be made available to all within the Cochrane community and to funding bodies.

Developing improved professional opportunities for CRG teams and editors
We recognize from consistent feedback that the current provision of professional and career development opportunities within Cochrane is sometimes limited, and in particular, that there is an unmet need for advanced editorial training and opportunities for staff working in editorial bases. Both of these are central to the strategy developed by the Learning and Support Department within the Central Executive Team (CET).

In our original webinar presentations we envisaged opportunities for creating specialization of roles for Managing Editors (MEs) and Information Specialists (IS). We are aware that there are structural challenges to delivering this, but continue to consider that it is a priority to encourage closer working between groups and also to seek such career development and learning opportunities where possible. Finding such opportunities within networks of CRGs may be easier where they share the same funder, and there is a desire on the part of that funder to promote appropriate skills mix and rationalisation of services.

Creating sustainable teams
There are many highly successful CRGs across the Cochrane community. From our discussions, these Groups appear to incorporate many or all of the following attributes:

- strong leadership allied to a well-functioning editorial board with appropriate methodological expertise and capacity
- sustained and relatively secure funding that is appropriate for the scope of the Group
- additional capacity over and above the ME and IS to provide review support to author teams
- strong commitment to quality
- strong connections to a network of key stakeholders outside Cochrane (e.g. consumer organisations / patient networks, clinicians, researchers, guideline developers, etc.).

Across Cochrane there are also Groups that are currently vulnerable for a variety of different reasons. These include:

- CRGs that lack editorial support and are therefore at higher risk of producing low-quality reviews;
- CRGs whose funding or output is disproportionately low relative to scope and need;
- CRGs with limited capacity or insufficient access to methodological support;
- CRGs that have insufficient or threatened funding;
- CRGs whose leadership is absent or sparse or not sufficiently engaged with the changes Cochrane is making to implement the *Strategy to 2020;*
- CRGs at risk of isolation, with few links to a user community.

To date, the CEU has engaged in different activities aimed at supporting or managing Groups, but these activities alone have not had the impact we need in order to deliver a consistent, efficiently produced and high-quality Cochrane Library. Sustainability is undoubtedly linked to the development of review production systems that match the characteristics of the high achievers. Therefore, the CEU proposes to conduct an analysis of all CRGs over the next 12 months to assess the sustainability of all CRGs against the

attributes of the high-functioning Groups. This will result in proposals that aim to address the challenges identified, and the creation of larger units that are capable of consistently delivering the outputs we seek.

4 Structure and Function Review proposal

This section describes the proposal for the transformation programme that we believe will produce a review production system that can harnesses Cochrane's diverse talents more effectively, and will enable us to achieve our vision.

1. We will create a new **Editorial Board**, comprising a mixture of Co-ordinating Editors and others representing the methods community, knowledge translation and end users from inside and outside Cochrane. This will be the leadership group for overseeing the transformation programme, and the implementation of the *Strategy to 2020,* setting future editorial strategy for the Cochrane Library, and overseeing its implementation.

2. We will improve **transparency, accountability and governance** arrangements between Cochrane and its CRGs, and develop performance metrics for the CEU, CRGs and the Cochrane Library.

3. We will undertake a **sustainability review** of all CRGs and match this to a needs assessment of the Cochrane Library. This will lead to recommendations for ways to achieve the changes needed to create **fewer, larger and more sustainable** editorial teams, including networks of CRGs that have shared interests (e.g. within a clinical discipline). The review will also seek to identify those groups who are most vulnerable and to provide recommendations for achieving greater sustainability.

4. We will introduce changes aimed at improving the functional performance of the review production systems in line with the agreed **Integrated Quality Strategy** that was approved at Cochrane's mid-year meetings in April 2016. This will include measures that seek to assure quality, improve speed to publication, introduce new and more flexible processes, and accelerate methodological innovation.

Enhanced Editorial Board

We propose to retire the current Co-ordinating Editors' Executive and to create an enhanced Editorial Board that will support the Editor in Chief in overseeing and managing the transformation programme, the delivery of our *Strategy to 2020*, and the development of the future strategy for a stronger, more sustainable Cochrane Library.

The main roles of this enhanced Editorial Board will be to:
* oversee implementation of the integrated quality strategy and transformation programme;
* monitor the performance of the Cochrane Library;
* develop and oversee implementation of future strategy in association with the Editor in Chief
* create a collective leadership model in support of the development of editorial and content strategies.

Membership will be determined over the period of the next six months. The Board will include five Co-ordinating Editors, a methods representative, one external member (representing the end users and with relevant experience in the area of evidence synthesis and its application in global decision making) and one representative from the Cochrane community who brings specific expertise in knowledge translation. The Editorial Board will be chaired by the Editor in Chief, supported by the Deputy Editor in Chief and the CEU Senior Editors. The membership will be reviewed after the first 12 months and may be reviewed in the light of experience.

Other Cochrane Central Executive staff (the Communication and External Affairs (CEAD), Informatics and Knowledge Management (IKMD), Learning and Support Departments (LSD) and CEO's team) will be co-opted as necessary in support of the Board.

Internal members of the Editorial Board will be given the title of 'Associate Editor, Cochrane Library'. Each appointment will be for a fixed-term, renewable, dependent on support from the CRG community and Editor in Chief.

Board members will receive funding equivalent to about one day per month, plus one registration for our annual Colloquium. They will therefore be expected to contribute to the work of developing and overseeing strategy for the Cochrane Library, and to work closely with the Editor in Chief, CEU and editorial teams.

Figure 1: Editorial Board

Enhanced governance and transparency

We will finalize and sign Memoranda of Understanding between Cochrane and the CRGs, their Co-ordinating Editors, and host institutions where appropriate. Many CRGs have previously indicated a willingness to sign the MoU as previously drafted, whilst others have indicated a willingness to do so with some minor amendments.

As part of the transformation programme we will increase transparency of quality assessments, and will also consult on and introduce a model whereby we provide an assessment of CRG performance separated by domains such as engagement with external stakeholders and decision makers, review quality, speed to publication, innovation and complexity, coverage related to scope, and impact. Initially this will form part of the sustainability review. It is important that metrics are seen as fair (including with respect for diversity and variable funding), and meaningful, and that they are cost effective to produce for both CRG team and the Central Executive.

We will also develop metrics for CEU performance based on the expectations included in the MOUs and these, including the detail of performance measured against them will be equally transparent.

Sustainability review

We believe that for the long-term sustainability of Cochrane we need fewer, larger, editorial bases, each servicing one or more specialist areas, with strong and committed leadership, increased and stable capacity and resources, and firm links within viable networks (inside and outside Cochrane). The largest funder of CRGs, the UK NIHR has indicated its support for Cochrane moving in this direction.

Over the next 12 months the CEU will work with CRG teams to develop and present a detailed analysis of all current Groups in relation to their future sustainability, matched to a needs assessment process, based on the scope covered by the Group, supported by currently available metrics and data, ongoing assessments of review quality, capacity and resources.

During years one to three of the transformation programme, we aim to create networks of CRGs that have shared interests, working increasingly closely together, and also to identify those groups that are currently vulnerable or unable to achieve the outputs that are needed to maintain the development of the Library and to achieve our vision.

The consultation process has demonstrated that there is no one thematic or network solution that suits all CRGs. Some Groups can be easily form networks around a clinical 'system' e.g. neurology or cancer. However, there are many Groups that do not fit easily into such a structure, either because they do not have a clinical focus, or because their focus sits across many clinical areas or simply does not fit with traditional 'medical' models. The experience of the Cancer Alliance shows that Groups forming a network are able to identify shared interests and aspirations, but that achieving these without additional support or incentive is challenging. Our proposal is to use the sustainability review to identify feasible networks of groups and to work with these networks to identify routes towards achieving shared goals. We will use the review to develop concrete recommendations for the Editorial Board and also the Governing Board where appropriate about the formation of effective networks of CRGs that build on existing relationships and are consistent with external perceptions and expectations. We propose that discretionary funds will be made available from Cochrane to the networks in order to fulfil specific projects that support the achievement of *Strategy to 2020* goals.

CRGs that are currently seen as vulnerable, whether they are under-funded, lacking leadership presence or capacity, or producing outputs that are inconsistent in quality or insufficient in volume to address their scope, will be identified during the first nine months of this review, and the CEU will work with each of these Groups to determine the appropriate path forwards, leading to the development of specific recommendations to be presented to the Editorial Board and Cochrane's Governing Board as appropriate. The recommendations will aim to improve sustainability and may include proposals to enhance leadership, mergers of Groups, changes of scope, recruitment of new experienced editors, editor training, satellites, or more radical solutions where needed. We will develop and present more detailed plans in the first three to four months of the transformation programme.

Case examples (illustrative)

CRG A is a high performing Group with committed leadership, stable funding through infrastructure and programme grants, high-volume output that meets quality expectations and with robust prioritization processes in place, meaning that it can be confident that it is covering its scope adequately. It has a strong editorial board and active networks outside Cochrane. It has been quite restrictive in the type of reviews

it undertakes, in order to concentrate its resources but now wishes to broaden to incorporate network meta-analysis.

It is judged to be a strong and sustainable Group. It agrees a limited engagement in support of another CRG with a related topic area in return for an agreed level of support from Cochrane. The CEU agrees to allocate a named editor in support of quality assurance, and provides active support for developing a new satellite aimed at increasing editorial capacity.

CRGs B, C, D and E have scopes that all are closely linked. All have stable funding but in one case it is relatively limited. Groups B and C are high performers, but Group D has had problems with quality, due to volume of work exceeding capacity, and insufficient methods skills amongst its editors. Leadership is generally strong although in Groups B and E, the Co-ordinating Editors have taken on key roles outside Cochrane that will inevitably mean they have less time to commit to the collaboration.

The Groups are judged to be sustainable, but with the potential to develop further. The Groups are provided with a named CEU based editor, who will focus on working with Group D to help improve review quality and offer methodological support as needed. All editors are offered tailored training through a series of regular webinars. A shared editorial base is created, on which managing editors and information specliaists work closely together.

CRG F has unstable, threatened funding and has a very low output. Its editorial board lacks methodological skills, and it has struggled to find methodological input. It does not have sufficient funding to appoint editors to support the core team of Co-ordinating Editors, ME and IS.

The Group is judged to be potentially unsustainable, and it is therefore helped to merge with another CRG that covers a related discipline. This move is supported by the CRG's host institution and the current funding is maintained.

Implementing the integrated quality strategy

Improving quality

We have previously identified a small number of CRGs that were at high risk of producing reviews with methodological and reporting problems, and have been monitoring these Groups and providing support in some cases. We believe that most of these CRGs have introduced changes that should bring about improvement, and have seen examples of this in reviews submitted to the CEU for screening. However, at the beginning of 2016, the CEU initiated a weekly meeting at which Cochrane Reviews from a wider selection of CRGs are presented and assessed. Some of these reviews have been submitted for 'on demand' screening because the CRG team has identified problems. In others, the review has come to the CEU team's attention via a referral from the Copy Edit Support service or because a CRG has requested support for media dissemination. The weekly meeting has demonstrated that many of the reviews referred for screening, irrespective of the context or the CRG involved fall short of the standards of quality set by Cochrane. This is described in more detail in the Quality Report prepared in parallel with this paper.

The current work on supporting quality assurance of reviews will continue, including:

- on demand screening;

- screening of reviews that are being considered for media release;

- dissemination of a screening guide; and

- bespoke support to 'high risk' groups.

Alongside these measures, we will develop and implement a rapid screening tool to evaluate Abstracts and 'Summary of Findings' tables of reviews that have been signed off for publication.The tool will provide a score (out of 10) for each review, and we intend to make this information available across Cochrane, so that review author teams and CRGs can compare their reviews with the average for that CRG, and Cochrane-wide. The checklist will also identify examples of good practice, and, additionally may be used to influence more detailed screening of reviews. Over the first three months we will consult with groups and agree the criteria to be assessed, and will also determine threshold measures for publication and identify those measures that will be considered essential for all reviews. A draft of the publication audit tool is included in the Appendix of this paper.

We will also improve transparency of reporting – all reports on progress will be fully transparent within the Cochrane community and to funding bodies.

Methods Support Unit
We aim to create better mechanisms of supporting and improving the review production system. This will involve the creation of a Methods Support Unit that will work closely with the CEU and provide 'on demand' input to those CRGs that do not currently have sufficient access to methodological support. We envisage that the team will be funded from central resources, but that researchers will also have non-financial incentives to participate, including the designation of a role of Cochrane Research Fellow (as previously outlined in the quality strategy document), and also through an expectation that where substantial input is provided, this may be recognized by including the individuals concerned into the author teams. The Methods Support Unit will also help identify specific learning needs across the CRG community and will liaise with Central Executive teams to address these.

It is important that the Methods Support team is distributed internationally, perhaps linked to Centres, Associate Centres (formerly Branches) or Affiliates but reporting to the Deputy Editor in Chief and Methods representative on the Editorial Board. Ideally at least some members of the Methods Support Unit would be native speakers in languages other than English, or would be attached to Centres that provide such multi-lingual input. We propose that each member should be available for at least one to two days per week. We would anticipate that the team would expect to provide input on between 60 to 100 systematic reviews per year – an equivalent of one full-time appointment.

Changes aimed at improving efficient production
As agreed in the Integrated Quality Strategy, we will work with volunteer CRGs to pilot and introduce different and new models aiming to create more efficient editorial processes that do not compromise review quality.

These will include:

- a 'journal like' process for selected reviews - dependent on the prior existence of a protocol;
- separation of the author support and editorial functions;
- new approaches to empty or 'near-empty' reviews whose primary purpose is not to determine benefit or harm but to promote primary research;
- experiments with merging title registration and protocol development in selected, volunteer CRGs;
- development of the 'living systematic review' concept.

We will also work with CRGs to implement changes that will lead to incremental gains in efficiency. These will include, but not be limited to:

- changes to the management of titles – establishing a lower threshold for rejection on capacity, priority and quality grounds based on an agreed rejection policy (to be developed), setting standards

for editorial turnaround of submissions, supporting efficient peer review, on demand 'in time' screening, and accelerated peer review for selected reviews;

- improved access to methodology support;
- increased adoption and use of technology solutions – Covidence, Project Transform, enhancements to existing technology e.g. RevMan web.

Introduction of newer methods

The CEU and methods community will work with Groups of interested CRGs to ensure that agreed innovations, including those supported by the Strategic Methods Fund are implemented more effectively and efficiently. This work will form part of a content strategy to be initiated in either late 2017 or 2018.

For each major innovation approved by the Scientific Committee or supported by the Strategic Methods Fund (SMF), the CEU will work with the Editorial Board and CRG community to develop a project plan. This will address the following:

- those CRGs primarily affected and committed to pursue the change (where non compulsory);
- key responsibilities of the Central Executive Teams and others
- vision and rationale for the project and desired outcomes that denote success;
- requirements for additional funding or support required;
- responsibilities, milestones, dependencies, risks and issues;
- timelines;
- engagement and communications plan.

Methods Network

The methods community will be represented on the Editorial Board, and we envisage that this role will include responsibility for providing leadership within a Methods Network, a role previously taken by the Methods representative on the CSG. We propose that this individual will be funded by Cochrane up to about one day per week, and will work closely with the Editor and Deputy Editor in Chief, and the Methods Co-ordinator.

We recognize that some of the implications for the methods community of the changes to review production, and the alignment of these changes with the Methods Structure and Function review have not yet been fully developed. In addition, the next 12 months will see the introduction of the Scientific Committee and the first wave of developments as a result of the Strategic Methods Fund. We also aim to introduce a Methods Support Team as part of this proposal. We would like to see these developments successfully introduced before initiating consultations on future changes.

5 Relationship between the Editor in Chief, Editorial Board and Methods committees

In order to face the challenges of improving and maintaining timeliness and high quality review production model we plan to establish a support network that will advise the Editor in Chief and play a strategic role in the decision making regarding changes in the editorial process and methods implementation. Editorial process decisions, including the future implementation of the proposed pilots, will be taken by the Editor in Chief and the Editorial Board, and methods decisions by the Editor in Chief in conjuction with the Scientific Committee.
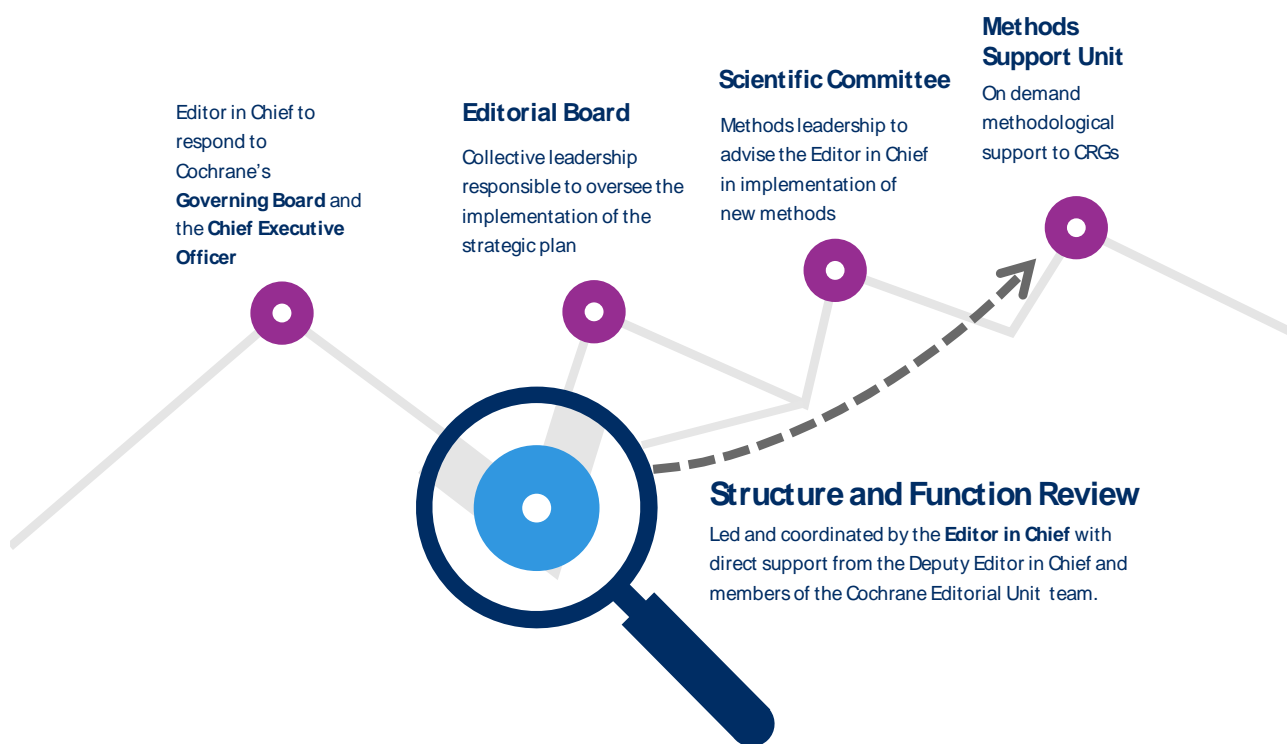
Editor in Chief to respond to Cochrane's **Governing Board** and the **Chief Executive Officer**

Editorial Board

Collective leadership responsible to oversee the implementation of the strategic plan

Scientific Committee

Methods leadership to advise the Editor in Chief in implementation of new methods

Methods Support Unit

On demand methodological support to CRGs

Structure and Function Review

Led and coordinated by the **Editor in Chief** with direct support from the Deputy Editor in Chief and members of the Cochrane Editorial Unit team.

Figure 2: Relationship between Board and committes with the Editor in Chief

The **Scientific Committee** is being set up to advise the Editor in Chief on appropriate methods to be used in Cochrane Reviews. In recent years it has become clear that there is variablility across Cochrane in relation to the adoption of new methods (e.g. trial sequential analysis), and no appropriate over-arching body to rule on appropriateness. The Scientific Committee will be made up of a mixture of methodologists and CRG leaders, and will also be able to co-opt expertise in methodological fields where needed. It will be required to consider how individual methods can be implemented but will not have primary responsibility for this.

The **Editorial Board** will develop and oversee strategy of the Cochrane Library alongside the Editor in Chief, as described above. It will ensure that appropriate measures are taken to ensure smooth implementation of methodological decisions made by the Scientific Committee. The Editorial Board will have a majority of Co-ordinating Editors.

The **Methods Support Unit** will support CRG teams by providing core methodological support to editorial teams who do not have sufficient access currently. The team will comprise methodologists, and will report to the Deputy Editor in Chief.

The **Governing Board** will represent the ultimate authority within Cochrane and will oversee the performance of the Editor in Chief and those under her or him in the context of editorial or content matters.

6 Proposed timelines and project plans

Please see Appendix A for timelines and milestones.

1 to 8 months:

- Formation of the Editorial Board

- Assessment of CRGs' sustainability and identification of sustainable editorial networks and vulnerable groups

- Development and approval of rejection policy

- Quality and transparency: initiation of Abstract/'Summary of findings' assessment of all new reviews and updates

- MoUs signed for at least 30 CRGs

- Initiation of at least three different process pilots across a larger number of CRGs(including 'journal style process')

6 to 15 months:

- Introduction of Methods Support team

- Sustainability review: presentation of conclusions and recommendations to the Governing Board and Editorial Board aimed at developing larger, more sustainable units

- Completion of initial process pilots and implementation of changes for 1) separation of functions, and 2) journal-like style

- Audits demonstrate substantial improvement in consistency of quality across Cochrane

- Demonstration of substantial improvement in speed to publication for high priority standard intervention reviews published after the beginning of 2018 (mean < 20 months from protocol publication)

- MOU signed with all editorial units

18-24 months:

- Evaluation of progress

7 Impact and resources required

Budget and timeline

Budget justification
We describe the timelines and milestones aligned with the objectives of the plan below. Most of the work will be performed by the current CEU team; Table 1 details the additional budget requested.

The transformation programme outlined in this document is far reaching and addresses key challenges for Cochrane and the sustainability of the Cochrane Library. For this reason, we are proposing an evaluation at 18-24 months to check that the intended progress is being made before investing further.

Enhanced Editorial Board

We propose that members of the Editorial Board should receive one complementary registration for the Cochrane Colloquium, and the equivalent of re-imbursement of one day per month. They will also be accorded the title of Associate Editor.

Sustainability review and ongoing management of vulnerable Groups

Throughout the year the CEU team will manage directly those CRGs identified as being at high risk of producing reviews that fall short of our standards. We will need additional resources because this work cannot be accommodated by the current team. We require an additional full-time, fixed-term, editorial support person.

In addition, we propose the development of discretionary funding from central resources that will be open for "networks" to apply for, in order to support strategically important projects.

Editorial process pilots

In order to ensure success, we require at least one full-time equivalent editor to provide support for CRGs. She/he will work with CRG teams to develop and monitor project plans, and will provide editorial support as appropriate.

We plan to work closely with the Project Transform team in support of the Living Systematic Reviews project. We are keen to ensure that the project is informed by methodological and publishing input, in addition to the technology function that is required. It is currently impossible to calculate what, if any, additional funding will be required.

Methods Support

We propose a centrally funded Methods Support Unit to work with the CRGs and the CEU to ensure that access to methods support for current methods is available, in addition to the editorial screening support.

Policy development

The Editorial and Publishing Policy team has initiated work to develop and update Cochrane's policies, and these activities are a key part of delivering the supportive environment that we wish to create in order to facilitate the efficient production of high-quality reviews. This will include development of a 'rejection' policy and policies on the initiation and maintenance of satellites.

Expected savings from existing budget:

We are proposing to end the existing CRG support project totaling £200,000/year[10], minus £72,000 already allocated in 2016/7.

Rollover of unused funds for integrated quality strategy budget in first year: ± £30,000

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[10] Includes a pre-agreed assignment of £72,000

Table 1: Requested budget 2017-2020

Project / workstream	Costs of new tasks (FTE / £)	Additional CEU costs (FTE / £)	2017	2018	2019	2020
Editorial Advisory Board	8 members /@£4000 ea	0	£32,000	£32,000	£32,000	£32,000
Methods support team	1.5 FTE methodologists @ £50,000 each Plus methods lead @£15,000	0	£90,000	£90,000	£90,000	£90,000
Pilots		Additional editorial support 0.25 FTE @£45,000 each	£11,250	£11,250	0	0
Sustainablity review		1.0 FTE editor @£45,000	£45,000	0	0	0
Discretionary payments for networks	@ £35,000 each	0	£70,000	£70,000	£70,000	£70,000
Quality and policies		0.25 FTE @£45,000	£11,250	£11,250	0	0
Admin support	@£32,000	0	£32,000	£32,000	£32,000	£32,000
YEARLY TOTAL			**£291,500**	**£246,500**	**£224,000**	**£224,000**
ADDITIONAL COST OVER CURRENT BUDGET[11]			**£91,500**	**£46,500**	**£24,000**	**£24,000**

8 Evaluation

We propose an independent assessment of the activities in progress after the initial 18 to 24 months. We will also prepare a report to the Governing Board for each face-to-face meeting that describes progress against these measures.

We will create a number of metrics by which we can monitor performance. These include measures of:

- review quality;

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[11] Taking into consideration savings from CRG support funds and underspend on integrated quality strategy in 2016

- speed to publication;

- innovation and complexity;

- impact;

- CRG team and author satisfaction;

- cost and value for money.

We also recognise the potential challenges and limitations of the current plan, and they have been summarized in Figure 3.
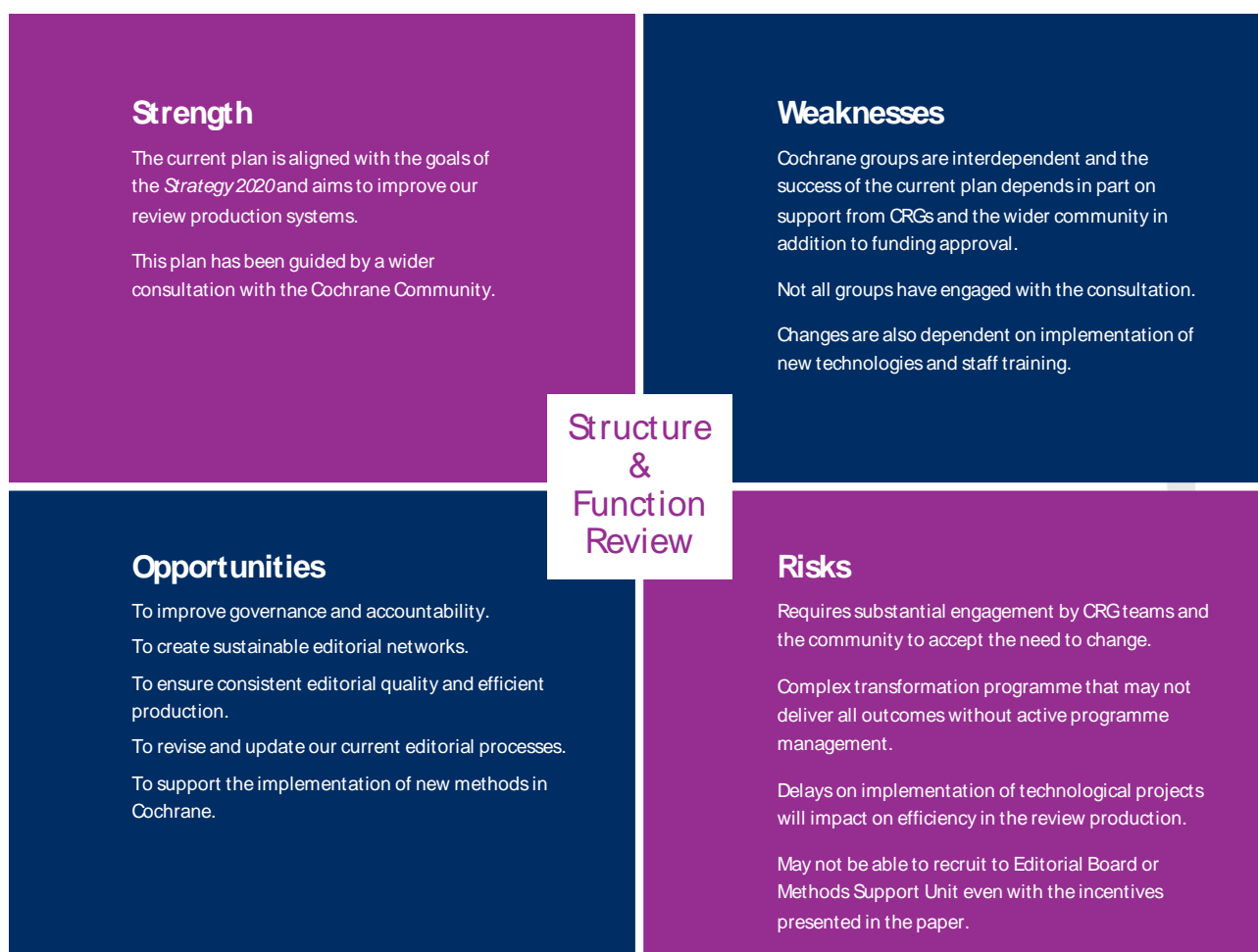
Strength

The current plan is aligned with the goals of the *Strategy 2020* and aims to improve our review production systems.

This plan has been guided by a wider consultation with the Cochrane Community.

Weaknesses

Cochrane groups are interdependent and the success of the current plan depends in part on support from CRGs and the wider community in addition to funding approval.

Not all groups have engaged with the consultation.

Changes are also dependent on implementation of new technologies and staff training.

Structure & Function Review

Opportunities

To improve governance and accountability.

To create sustainable editorial networks.

To ensure consistent editorial quality and efficient production.

To revise and update our current editorial processes.

To support the implementation of new methods in Cochrane.

Risks

Requires substantial engagement by CRG teams and the community to accept the need to change.

Complex transformation programme that may not deliver all outcomes without active programme management.

Delays on implementation of technological projects will impact on efficiency in the review production.

May not be able to recruit to Editorial Board or Methods Support Unit even with the incentives presented in the paper.

Figure 3: Potential challenges and benefits of the current Structure and Function Review proposal

9 Recommendations to CSG

We recommend that the Cochrane Steering Group approves the transformation programme in its entirety, including the four discrete areas and provides funding in support of this.

Appendix A: Timelines and milestones

Projects and streamwork	2016	2017	2018	2019	2020	Milestones
Enhanced Editorial Board						
Invitation of members to compose the board						• Editorial Board formed
Selection process						• Project strategy discussed with the Board and approved
Bi-monthly teleconferences						• Regular feedback reports to Board of Trustees
Face-to-face meetings						
Detailed report of activities						
Enhanced governance and transparency						
MoU between Cochrane and CRGs						• MoU signed with at least 30 CRGs by mid-2017
Rejection and sign off policies						• All MoU signed by January 2018
Abstract/SoF checklist for new reviews and updates						• Rejection and sign off policies implemented by mid-2017
Abstract/SoF checklist quarterly report						• New reviews and updates assessed quarterly with results publically available
Reassessment of metrics						• CRG and CEU metrics finalized by mid-2018
CRGs review metrics						
CEU assessment						
Sustainability review						
Assessment of CRGs sustainability						• Assessment of CRGs' sustainability and and identification of 'sustainable editorial units' by mid-2017
Report on consultation about less viable CRGs and proposed solutions						• Conclusions and recommendations presented to Board of Governors and EAB aimed at developing larger, more sustainable units by end 2017
Bi-monthly teleconferences with CRGs teams						
Encourage the creation of "networks" and provide discretionary funds						

Implementing the integrated quality strategy

Projects and streamwork	2016	2017	2018	2019	2020
Screening of high priority reviews and updates and press releases	■	■	■	■	■
Editorial development – editorial training material (LSD)	■	■			
Editorial development – periodic teleconferences on demand		■			
Appointment of Methods Support Unit		■			
Methods Support Unit (active)		■	■	■	■
Pilot 1: Journal-like publication	■	■			
Pilot 2: Separation of the author support and editorial functions	■	■			
Pilot 3: Editorial changes for "empty" reviews		■			
Pilot 4: Experimenting with merging title registration and protocol development		■	■		
Pilot 5: Development of "living systematic review" concept		■	■		
Methods Network in place		■			

Milestones

- Methods support team introduced and supporting CRGs on regular basis from April 2017
- Pilots 1 and 2 completed by mid-2017 and recommendations for implementation presented to Editorial Board
- Pilots 3 to 5 completed by end 2017 and recommendations for implementation presented to Editorial Board
- Audits demonstrating 95% adherence to prepublication checklist requirements
- Publication for high quality priority standard intervention reviews in ≤ 20 months from protocol publication

Appendix B: Proposed publication checklist for all Abstracts, Plain Language Summaries, and 'Summary of findings' tables

Main questions:

☐ Is the research question PICO clear and the rationale for the review well described?

☐ Is the search date less than 6 months from publication and were trials registers searched?

☐ Is the methodological approach of the review appropriate and has it been followed in terms of conduct and reporting?

☐ Are the main (and all primary) outcomes for all important comparisons reported?

☐ Are harms (or the absence of harms) reported?

☐ Are absolute and relative effect measures reported?

☐ Are the direction and magnitude of effects of described outcomes clearly described where appropriate?

☐ Is there some estimation of the certainty (or quality) of the body of evidence using GRADE?

☐ Do the reported narrative results and conclusions match the GRADE SoF table(s) and are they appropriately described including the description of uncertainty, and the avoidance of reliance on statistical significance to determine presence or absence of an effect?

☐ Do the authors avoid making recommendations?

Other (positive) characteristics

☐ The review demonstrates features of complexity (complex question or interventions or analysis).

☐ The review addresses a different question type (DTA, prognosis, qualitative).

☐ The review demonstrates non-standard methods appropriately (network meta-analysis, sources of data beyond beyond randomized controlled trials).

☐ The Abstract demonstrates excellent clarity of written English, and provides a valid and accessible summary of the review.

☐ Unit of analysis issues are appropriately addressed.