**Implementation, Maintenance, Scaling Up, Sustainability (IMSS)  
of Interventions, Multi-Intervention Programs and Multi-Component Approaches  
A Working Paper**

Introduction

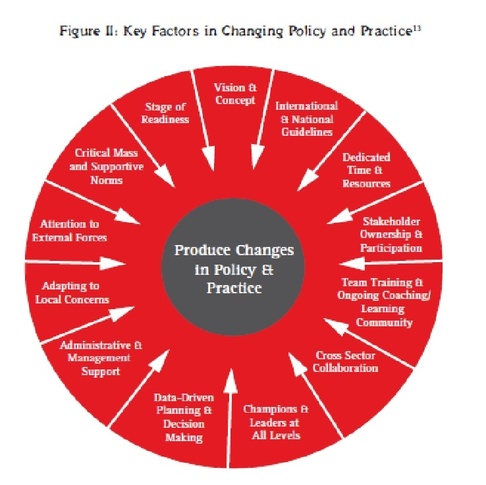
The implementation, ongoing maintenance or operation, scaling up and long-term sustainability (IMSS) of individual interventions, multi-intervention programs on various health & social topics and multi-component approaches has emerged as a primary concern in education, health promotion and social development. Implementation science experts and advocates have successfully introduced this change continuum and challenge as a key dimension of a more systems-focused paradigm and have provided numerous concepts and tools that can be understood and used more effectively in policy and program planning. This IMSS continuum is similar but different than other dimensions such as capacity-building, integration within education systems and better use of systems science concepts and organizational development tools.

This working paper is intended to describe the scope of IMSS work and potential strategies used as well as suggest that this cross-cutting theme needs greater attention in our policy/planning models as well as when we address any specific topic, population or context.

Here is a brief summary of what we know about IMSS. Each of the concepts underlined below and others need our attention and planned application in work.

*Planning for the* ***implementation, maintenance, scale up, sustainability of these multi-intervention approaches and programs*** *requires use of traditional, effective, operational planning steps such as* *involving stakeholders, selecting effective programs and* *using evidence-based and experience-tested implementation models and frameworks. Planners should also* *identify local barriers/drivers of change such as inter-organizational relationships, recent events and incidents. Planning should include considerations of scaling up, start-up and ongoing costs, succession of key personnel and sustainability from the start. A thorough understanding of the local situation, magnitude, complexity and the “fit” or congruence a between the planned interventions or approach with the local situation, the use of evidence-based and experience-tested planning tools and* *clarity about the intended outputs from different distribution, dissemination or diffusion (institutionalization) strategies are also required.*

Better practice advice can be summarized under these headings:

1. Begin with the end in mind: Sustainable multi-component approaches, multi-intervention programs or single intervention programs is the “end” that we need to keep in mind. Sustainability is indicated when the innovation is valued through written reports, structures, assigned staffing with titles reflecting the program or approach, logos, and rituals such as regular staff meetings or with terms being added to the organization's language. Sustainable change has defined roles, including a designated supervisor to receive reports, formal descriptions of tasks and jobs and manual of procedures or policies. Factors that promote sustainability[[1]](#endnote-1) include; the perceived advantages (social, economic, political) of the innovation or reform, the involvement of middle managers as champions, linking the long-term health or social goals of the project to short term educational benefits such as fewer class disruptions, formation of peer networks within the organization and making the content of the innovation interesting to students and educators. Achieving a critical mass of support (and ensuring a minimum level of ongoing support) by starting with early adopters and listening to the concerns of adopters and resistors is important in the early stages. Training of all relevant staff (not just educators) is important but only effective if it is provided to new staff and only if it is updated for existing staff. Using hybrid designs that embed implementation planning from the first planning steps is recommended[[2]](#endnote-2),[[3]](#endnote-3).
2. Be clear about your intended process and required resources: Clarity about the intended outputs that come from different distribution, dissemination or diffusion (institutionalization) strategies is required[[4]](#endnote-4). These strategies produce different results that may or may not be intended to be sustainable. Distribution, the strategy often used when resources are scarce, is a limited strategy that simply sends the materials to a set of intended audiences in a manner that is convenient to them. The distribution plan for a resource sometimes includes an ongoing publicity to maintain awareness about the resource. This level of activity will also usually have someone assigned to respond to inquiries. A dissemination strategy crosses the line into providing “customer support” but does not hire new staff or provide ongoing funding for new staff. In effect, a dissemination strategy relies on others becoming a champion and change agent on behalf of the new resource, innovation or idea. Diffusion or the institutionalization of a program or approach is a multi-stage strategy whereby the policy of program is considered part of the core business of the organization, with a budget line, place in the organization staffing chart, having personnel, facilities and equipment assigned to that named function with specific job descriptions and a developing institutional memory for important agreements and procedures. A review[[5]](#endnote-5) demonstrates that the costs of scaling up an intervention are specific to both the type of intervention and its particular setting. However, the literature indicates general principles that can guide the process: (1) calculate separate unit costs for urban and rural populations; (2) identify economies and diseconomies of scale, and separate the fixed and variable components of the costs; (3) assess availability and capacity of health human resources; and (4) include administrative costs, which can constitute a significant proportion of scale-up costs in the short run.
3. Consider the size, time and costs of the intended innovation or change to determine the time needed for implementation: Realistic estimates of the investments required for the policy, program or approach should be considered from the outset. A low-cost policy change such as regulating food sales in schools will likely take a year to develop with stakeholders and then 2-3 years to implement in a school system, with related changes to school activities such as fund-raising, sponsorship of sports events and classroom practices such as food rewards taking longer. A large cost intervention such as school meals can take 10-15 years to implement in a national system if the maintenance stage is to include local government funding (as opposed to external) funding and the provision of local grown foods. Building a multi-intervention program around an issue like food and nutrition can take 5-10 years before the different elements such as policy on school food environments, classroom and extended nutrition education, school feeding, school gardens and others are in place in most schools. Aligning multi-interventions within a multi-component approach such as Health Promoting Schools or the Essential Package on several selected issues will take even longer, especially if a multi-level approach involving the relevant ministries, local agencies/authorities and schools/ neighbourhood professionals is the goal. Start-up and ongoing costs of the intended policy, program or approach should be estimated and planned for in advance of starting. Further, the size of the change will shape the response from various systems. Local schools are open and adaptive to small scale, low cost “innovations” but education agencies and ministries are often resistant to large scale reforms that require them to change the balance between their academic, custodial and socialization functions.   
     
   Health ministries are similar and are often resistant to reforming the approach to health care services or to moving beyond “prevention” strategies on specific diseases to promoting community and organizational development strategies that are required for health promotion. Environment ministries often focus and organize their work and structures around specific environmental hazards or aspects of climate change. In most sectors, the reward systems, expertise, research, structures and organizational routines are organized around the urgent problems and less around the long-term solutions.
4. Assess the scope, complexity, fit/transferability of the intended innovation or change: The fit[[6]](#endnote-6) or transferability[[7]](#endnote-7) of an innovation or change can be measured and placed on a scale[[8]](#endnote-8). A thematic synthesis[[9]](#endnote-9) revealed 44 criteria, covered by 4 overarching themes, which influence transferability of health interventions: The population (P), the intervention (I), and the environment (E) represent 30 conditional transferability criteria, and the transfer of the intervention (T) represents 14 process criteria for transferring the intervention to the target context. Transferability (-T) depends on the dynamic interaction of conditional criteria in the primary and target context as well as on the process of transfer.
5. Use key, traditionally identified [implementation mechanisms](http://www.schools-for-all.org/page/Local+Mechanisms+in+Implementation+%28HS%29): These mechanisms are often described in various guides and manuals[[10]](#endnote-10),[[11]](#endnote-11). These include involving stakeholders from the outset, selecting evidence-based and experience-tested programs, securing the support of administrators, building staff and organizational competencies and other actions. Partnerships with academic centres is another effective tactic[[12]](#endnote-12).
6. Use evidence-based and experience-tested [implementation models & frameworks](http://www.schools-for-all.org/page/Using+Evidence-based+Implementation+Models+in+School+Health%2C+Safety+%26+Social+Development+%28HS%29)[[13]](#endnote-13),[[14]](#endnote-14),[[15]](#endnote-15),[[16]](#endnote-16),[[17]](#endnote-17): such as the Re-AIM[[18]](#endnote-18), Concerns-based Adoption, PRECEDE-PROCEED or the Consolidated Framework for Implementation Research. Several recent reviews have suggested the use of theory and models of “complex adaptive systems”[[19]](#endnote-19),[[20]](#endnote-20),[[21]](#endnote-21). Other researchers[[22]](#endnote-22),[[23]](#endnote-23),[[24]](#endnote-24) have examined the scope, nature and qualities of these theories and models. Several guides[[25]](#endnote-25),[[26]](#endnote-26) are now available. These approaches and guides can be adapted for low resource contexts[[27]](#endnote-27).

Identify [local barriers/drivers of change](http://www.schools-for-all.org/page/Local+Drivers+in+Implementation+%28GT%29)[[28]](#endnote-28),[[29]](#endnote-29): Anticipate the possible interactions between the intended innovation/change, the local context[[30]](#endnote-30),[[31]](#endnote-31),[[32]](#endnote-32) and the processes that you intend to follow. These include such elements and aspects such as attributes of the local community, inter-organizational relationships, recent events and incidents, cultural factors, personal relationships among key individuals, the history and evolution of the problem and related programs in the country and more. The timing of the implementation, maintenance or scale up activities can be critical[[33]](#endnote-33). The attributes of the service or innovation being scaled, the actors involved, the context, and the scale-up strategy) and questions commonly addressed by Implementation Research IR (concerning acceptability, appropriateness, adoption, feasibility, fidelity to original design, implementation costs, coverage and sustainability) all need to be explored[[34]](#endnote-34). The timing of the implementation, maintenance and scaling up activities is also critical[[35]](#endnote-35). Begin with early adopters and encourage them instead of responding only to resisters. Take small practical steps with activities that show early results or early enthusiasm/support for the change.

1. Work through some of the ambiguities about Scale-Up (is it expansion of a single intervention? Or a comprehensive approach?) and challenges associated with “scaling up” approaches, policies and programs[[36]](#endnote-36) which tend to be iterative in nature[[37]](#endnote-37): These include a lack of technical consensus, limited resources, low engagement of local implementers and poor use of diffusion techniques. Lessons learned from successful scaling up activities[[38]](#endnote-38) such as using local evidence and experience, building institutional capacity, providing ongoing technical support when scale up involves complex interventions, integrating considerations of gender and equity issues into the process and ensuring ongoing feedback and formative assessments. Clarity in defining the scalable unit within the organization[[39]](#endnote-39) is critical – for too long in school health & development, the individual school has been treated as that unit for change but in reality, it must include the ministries and local authorities and agencies. Recognize that scaling up is a craft not a science[[40]](#endnote-40). Pragmatism[[41]](#endnote-41) and a lack of hubris[[42]](#endnote-42) are required as more knowledge and understanding are acquired. As with the adoption of the policy, program or approach itself, effective implementation, maintenance, scale up and sustainability will require sustained political and managerial support[[43]](#endnote-43) as scaling down existing programs is also difficult[[44]](#endnote-44).
2. Think clearly and realistically about the sustainability of comprehensive approaches[[45]](#endnote-45),[[46]](#endnote-46),[[47]](#endnote-47), [[48]](#endnote-48): Planning for sustainability is the first stage of a process that must engage all relevant stakeholders from the outset, not in the middle or at the end of a pilot project. Sustainability must be achieved at multiple levels (professionals, school, school board/health authority/agency and ministries) within several systems to be stable. Routinization or institutionalization of an innovation is critical to sustainability and includes instilling the program or change in the corporate or organizational memory (explicit part of the annual budget, assigning positions in the annual staffing plan, providing office space and equipment and allocating staff time to complete the tasks)
3. Recognize critical events, junctures or transition points in the scaling up or scaling down of the comprehensive approach: There are several critical junctures, events, pathways or transition points that mark progress in growing a comprehensive, multi-sector approach[[49]](#endnote-49),[[50]](#endnote-50),[[51]](#endnote-51). Often these critical events, junctures or transitions can become bottlenecks, barriers or breaking points that prevent the full development of a coherent and comprehensive SF&N approach. One type of transition or critical event occurs in all multi-intervention approaches. The transition occurs when isolated, individual interventions become a more effective, coordinated set of policies and programs that make up a multi-faceted approach. Macro-policies can require ministries, agencies and front-line personnel to coordinate the various interventions. However, it takes time and training for all levels and categories of personnel to assimilate this type of thinking and doing into their daily practice. It also takes a system and organization that rewards staff for reaching across to others to establish linkages rather than only focusing on their project, program or task.

References

1. Pluye, P., Potvin, L., Denis, J. L., Pelletier, J. (2004). [Program sustainability: Focus on organizational routines.](https://academic.oup.com/heapro/article-abstract/19/4/489/576685) *Health Promotion International, Dec;19*(4), 489-500.  
    [↑](#endnote-ref-1)
2. Wolfenden L, Williams CM, Wiggers J, Nathan N, Yoong SL (2016) [Improving the translation of health promotion interventions using effectiveness-implementation hybrid designs in program evaluations](https://www.ncbi.nlm.nih.gov/pubmed/29241482). Health Promot J Austr. 2016 Feb;27(3):204-207. doi: 10.1071/HE16056.  
    [↑](#endnote-ref-2)
3. Aldridge WA 2nd, Boothroyd RI, Fleming WO, Lofts Jarboe K, Morrow J, Ritchie GF, Sebian J (2016) [Transforming community prevention systems for sustained impact: embedding active implementation and scaling functions](https://www.ncbi.nlm.nih.gov/pubmed/27012261). Transl Behav Med. 2016 Mar;6(1):135-44. doi: 10.1007/s13142-015-0351-y  
    [↑](#endnote-ref-3)
4. McCall D, MacDougall C, Carpenter S, Andrew C, Shannon M (2009) [Using Evidence-based Implementation Theory & Models in School Health Promotion](http://www.schools-for-all.org/page/Using+Evidence-based+Implementation+Models+in+School+Health%2C+Safety+%26+Social+Development+%28HS%29), Handbook Section, World Encyclopedia on School Health, Safety, Social & Sustainable Development, Surrey, BC, International School Health Network.   
    [↑](#endnote-ref-4)
5. Johns B, Torres TT; WHO-CHOICE. (2005) [Costs of scaling up health interventions: a systematic review](https://www.ncbi.nlm.nih.gov/pubmed/15689425). Health Policy Plan. 2005 Jan;20(1):1-13. Review  
    [↑](#endnote-ref-5)
6. Power J, Gilmore B, Vallières F, Toomey E, Mannan H, McAuliffe E. (2019) [Adapting health interventions for local fit when scaling-up: a realist review protocol](https://www.ncbi.nlm.nih.gov/pubmed/30679286). BMJ Open. 2019 Jan 24;9(1):e022084. doi: 10.1136/bmjopen-2018-022084  
    [↑](#endnote-ref-6)
7. Villeval M, Bidault E, Shoveller J, Alias F, Basson JC, Frasse C, Génolini JP, Pons E, Verbiguié D, Grosclaude P, Lang T (2016) [Enabling the transferability of complex interventions: exploring the combination of an intervention's key functions and implementation](https://www.ncbi.nlm.nih.gov/pubmed/27063950). Int J Public Health. 2016 Dec;61(9):1031-1038. Epub 2016 Apr 11.  
    [↑](#endnote-ref-7)
8. Owolabi M, Miranda JJ, Yaria J, Ovbiagele B (2016) [Controlling cardiovascular diseases in low and middle income countries by placing proof in pragmatism](https://www.ncbi.nlm.nih.gov/pubmed/27840737). BMJ Glob Health. 2016 Oct 5;1(3). pii: e000105.  
    [↑](#endnote-ref-8)
9. Schloemer T, Schröder-Bäck P. (2018) [Criteria for evaluating transferability of health interventions: a systematic review and thematic synthesis](https://www.ncbi.nlm.nih.gov/pubmed/29941011). Implement Sci. 2018 Jun 26;13(1):88. doi: 10.1186/s13012-018-0751-8. Review.  
    [↑](#endnote-ref-9)
10. Vince Whitman, C., “Implementing Research-based Health Promotion Programmes in Schools: Strategies for Capacity Building,” Chapter 6 in S. Clift, B.B. Jensen (eds.) The Health Promoting School: International Advances in Theory, Evaluation and Practice. Copenhagen: Danish University of Education Press, 2005  
     [↑](#endnote-ref-10)
11. M. Pearson, R. Chilton, K. Wyatt, C. Abraham, T. Ford, HB Woods, R. Anderson (2015) [Implementing health promotion programmes in schools: a realist systematic review of research and experience in the United Kingdom](https://implementationscience.biomedcentral.com/articles/10.1186/s13012-015-0338-6), Implementation Science, 2015: 10:149, https://doi.org/10.1186/s13012-015-0338-6  
     [↑](#endnote-ref-11)
12. Laar AK, Aryeetey RNO, Annan R, Aryee PA, Amagloh FK, Akparibo R, Laar ME, Amuna P, Zotor FB. (2017) [Contribution of scaling up nutrition Academic Platforms to nutrition capacity strengthening in Africa: local efforts, continental prospects and challenges](https://www.ncbi.nlm.nih.gov/pubmed/28756793). Proc Nutr Soc. 2017 Nov;76(4):524-534. doi: 10.1017/S0029665117001124  
     [↑](#endnote-ref-12)
13. Brown CH, Curran G, Palinkas LA, Aarons GA, Wells KB, Jones L, Collins LM, Duan N, Mittman BS, Wallace A, Tabak RG, Ducharme L, Chambers DA, Neta G, Wiley T, Landsverk J, Cheung K, Cruden G. (2017) [An Overview of Research and Evaluation Designs for Dissemination and Implementation.](https://www.ncbi.nlm.nih.gov/pubmed/28384085) Annu Rev Public Health. 2017 Mar 20;38:1-22. doi: 10.1146/annurev-publhealth-031816-044215 [↑](#endnote-ref-13)
14. Birken SA, Powell BJ, Presseau J, Kirk MA, Lorencatto F,Gould NJ, Shea CM, Weiner BJ, Francis JJ, Yu Y, Haines E, Damschroder LJ.(2017) [Combined use of the Consolidated Framework for Implementation Research (CFIR) and the Theoretical Domains Framework (TDF): a systematic review](https://www.google.com/url?q=https%3A%2F%2Fwww.ncbi.nlm.nih.gov%2Fpubmed%2F28057049&sa=D&usd=2&usg=AFQjCNGH8-CYNIG08RhyjDikur-N_mVVRA), Implement Sci.2017 Jan 5;12(1):2. doi: 10.1186/s13012-016-0534-z [↑](#endnote-ref-14)
15. McGoey T, Root Z, Bruner MW, Law B (2015) [Evaluation of physical activity interventions in youth via the Reach, Efficacy/Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework: A systematic review of randomised and non-randomised trials](http://www.ncbi.nlm.nih.gov/pubmed/25900802?dopt=Abstract), Prev Med. 2015 Jul;76:58-67. doi: 10.1016/j.ypmed.2015.04.006  
     [↑](#endnote-ref-15)
16. Maar M, Yeates K, Barron M, Hua D, Liu P, Moy Lum-Kwong M, Perkins N, Sleeth J, Tobe J, Wabano (2015) [I-RREACH: an engagement and assessment tool for improving implementation readiness of researchers, organizations and communities in complex interventions](https://www.ncbi.nlm.nih.gov/pubmed/25935849). Implement Sci. 2015 May 4;10:64. doi: 10.1186/s13012-015-0257-6 [↑](#endnote-ref-16)
17. Escoffery C, Lebow-Skelley E, Udelson H, Böing EA, Wood R, Fernandez ME, Mullen PD (2019) [A scoping study of frameworks for adapting public health evidence-based interventions](https://www.ncbi.nlm.nih.gov/pubmed/29346635). Transl Behav Med. 2019 Jan 1;9(1):1-10. doi: 10.1093/tbm/ibx067  
     [↑](#endnote-ref-17)
18. Glasgow RE, Vogt TM, Boles SM (1999) [Evaluating the public health impact of health promotion interventions: the RE-AIM framework](https://ajph.aphapublications.org/doi/abs/10.2105/AJPH.89.9.1322). American Journal of Public Health 89, no. 9 (September 1, 1999): pp. 1322-1327. DOI: 10.2105/AJPH.89.9.1322  
     [↑](#endnote-ref-18)
19. Paina L, Peters DH. (2012) [Understanding pathways for scaling up health services through the lens of complex adaptive systems](https://www.ncbi.nlm.nih.gov/pubmed/21821667). Health Policy Plan. 2012 Aug;27(5):365-73. doi: 10.1093/heapol/czr054. [↑](#endnote-ref-19)
20. Pérez-Escamilla R, Cavallera V, Tomlinson M, Dua T. (2018) [Scaling up Integrated Early Childhood Development programs: lessons from four countries](https://www.ncbi.nlm.nih.gov/pubmed/29235170). Child Care Health Dev. 2018 Jan;44(1):50-61. doi: 10.1111/cch.12480  
     [↑](#endnote-ref-20)
21. Pfadenhauer LM, Gerhardus A, Mozygemba K, Lysdahl KB, Booth A, Hofmann B, Wahlster P, Polus S, Burns J, Brereton L, Rehfuess E. (2017) [Making sense of complexity in context and implementation: the Context and Implementation of Complex Interventions (CICI) framework](https://www.ncbi.nlm.nih.gov/pubmed/28202031). Implement Sci. 2017 Feb 15;12(1):21. doi: 10.1186/s13012-017-0552-5. Review. [↑](#endnote-ref-21)
22. Nilsen P. (2015) [Making sense of implementation theories, models and frameworks](https://www.ncbi.nlm.nih.gov/pubmed/25895742). Implement Sci. 2015 Apr 21;10:53. doi: 10.1186/s13012-015-0242-0  
     [↑](#endnote-ref-22)
23. McIsaac JL, Warner G, Lawrence L, Urquhart R, Price S, Gahagan J, McNally M, Jackson LA (2018) [The application of implementation science theories for population health: A critical interpretive synthesis](https://www.ncbi.nlm.nih.gov/pubmed/30083567). AIMS Public Health. 2018 Mar 12;5(1):13-30. doi: 10.3934/publichealth.2018.1.13  
     [↑](#endnote-ref-23)
24. Leeman J, Birken SA, Powell BJ, Rohweder C, Shea CM. (2017) [Beyond "implementation strategies": classifying the full range of strategies used in implementation science and practice](https://www.ncbi.nlm.nih.gov/pubmed/29100551). Implement Sci. 2017 Nov 3;12(1):125. doi: 10.1186/s13012-017-0657-x. Review  
     [↑](#endnote-ref-24)
25. Milat AJ, Newson R, King L, Rissel C, Wolfenden L, Bauman A, Redman S, Giffin M. (2016) [A guide to scaling up population health interventions](https://www.ncbi.nlm.nih.gov/pubmed/26863167). Public Health Res Pract. 2016 Jan 28;26(1):e2611604. doi: 10.17061/phrp2611604 [↑](#endnote-ref-25)
26. Darnell D, Dorsey CN, Melvin A, Chi J, Lyon AR, Lewis CC. (2017) [A content analysis of dissemination and implementation science resource initiatives: what types of resources do they offer to advance the field?](https://www.ncbi.nlm.nih.gov/pubmed/29162150) Implement Sci. 2017 Nov 21;12(1):137. doi: 10.1186/s13012-017-0673-x  
     [↑](#endnote-ref-26)
27. Ramaswamy R, Shidhaye R, Nanda S. (2018) [Making complex interventions work in low resource settings: developing and applying a design focused implementation approach to deliver mental health through primary care in India](https://www.ncbi.nlm.nih.gov/pubmed/29387148). Int J Ment Health Syst. 2018 Jan 22;12:5. doi: 10.1186/s13033-018-0181-7 [↑](#endnote-ref-27)
28. International School Health Network (2009) [Local Drivers in Introducing, Implementing and Sustaining a Local Program or Building a Comprehensive Approach: Individuals, Incidents, Inter-Organizational, Idiosyncratic Factor](http://www.schools-for-all.org/page/Local+Drivers+in+Implementation+%28GT%29)s. Glossary Term. World Encyclopedia on School Health, Safety, Social & Sustainable Development, Surrey, BC, Author (In Progress)   
     [↑](#endnote-ref-28)
29. Yamey G (2012) [What are the barriers to scaling up health interventions in low and middle income countries? A qualitative study of academic leaders in implementation science.](https://www.ncbi.nlm.nih.gov/pubmed/22643120) Global Health. 2012 May 29;8:11. doi: 10.1186/1744-8603-8-11 [↑](#endnote-ref-29)
30. Bergström A, Skeen S, Duc DM, Blandon EZ, Estabrooks C, Gustavsson P, Hoa DT, Källestål C, Målqvist M, Nga NT, Persson LÅ, Pervin J, Peterson S, Rahman A, Selling K, Squires JE, Tomlinson M, Waiswa P, Wallin L. (2015) [Health system context and implementation of evidence-based practices-development and validation of the Context Assessment for Community Health (COACH) tool for low- and middle-income settings](https://www.ncbi.nlm.nih.gov/pubmed/26276443). Implement Sci. 2015 Aug 15;10:120. doi: 10.1186/s13012-015-0305-2.  
     [↑](#endnote-ref-30)
31. Watson DP, Adams EL, Shue S, Coates H, McGuire A, Chesher J, Jackson J, Omenka OI. (2018) [Defining the external implementation context: an integrative systematic literature review.](https://www.ncbi.nlm.nih.gov/pubmed/29580251) BMC Health Serv Res. 2018 Mar 27;18(1):209. doi: 10.1186/s12913-018-3046-5. Review  
     [↑](#endnote-ref-31)
32. Powell BJ, Beidas RS, Lewis CC, Aarons GA, McMillen JC, Proctor EK, Mandell DS. (2017) [Methods to Improve the Selection and Tailoring of Implementation Strategies](https://www.ncbi.nlm.nih.gov/pubmed/26289563). J Behav Health Serv Res. 2017 Apr;44(2):177-194. doi: 10.1007/s11414-015-9475-6  
     [↑](#endnote-ref-32)
33. Wickremasinghe D, Gautham M, Umar N, Berhanu D, Schellenberg J, Spicer N. (2018) ["It's About the Idea Hitting the Bull's Eye": How Aid Effectiveness Can Catalyse the Scale-up of Health Innovations](https://www.ncbi.nlm.nih.gov/pubmed/30078292). Int J Health Policy Manag. 2018 Feb 14;7(8):718-727. doi: 10.15171/ijhpm.2018.08 [↑](#endnote-ref-33)
34. Barker PM, Reid A, Schall MW. (2016) [A framework for scaling up health interventions: lessons from large-scale improvement initiatives in Africa](https://www.ncbi.nlm.nih.gov/pubmed/26821910). Implement Sci. 2016 Jan 29;11:12. doi: 10.1186/s13012-016-0374-x [↑](#endnote-ref-34)
35. Rubin RM, Hurford MO, Hadley T, Matlin S, Weaver S, Evans AC (2016) [Synchronizing Watches: The Challenge of Aligning Implementation Science and Public Systems](https://www.ncbi.nlm.nih.gov/pubmed/27511103). Adm Policy Ment Health. 2016 Nov;43(6):1023-1028.  
     [↑](#endnote-ref-35)
36. Lindsay J Mangham and Kara Hanson (2009) [Scaling up in international health: what are the key issues?](http://heapol.oxfordjournals.org/content/25/2/85.full), Health Policy and Planning, Health Policy and Planning, pp 85-96  
     [↑](#endnote-ref-36)
37. Milat AJ, King L, Newson R, Wolfenden L, Rissel C, Bauman A, Redman S. (2014) [Increasing the scale and adoption of population health interventions: experiences and perspectives of policy makers, practitioners, and researchers](https://www.ncbi.nlm.nih.gov/pubmed/24735455). Health Res Policy Syst. 2014 Apr 15;12:18. doi: 10.1186/1478-4505-12-18  
     [↑](#endnote-ref-37)
38. World Health Organization (2008) [Scaling Up Health Services: Challenges and Choices](http://www.who.int/healthsystems/topics/delivery/technical_brief_scale-up_june12.pdf): WHO Technical Brief No. 3, Geneva  
     [↑](#endnote-ref-38)
39. Barker PM, Reid A, Schall MW. (2016) [A framework for scaling up health interventions: lessons from large-scale improvement initiatives in Africa](https://www.ncbi.nlm.nih.gov/pubmed/26821910). Implement Sci. 2016 Jan 29;11:12. doi: 10.1186/s13012-016-0374-x [↑](#endnote-ref-39)
40. Spicer N, Bhattacharya D, Dimka R, Fanta F, Mangham-Jefferies L, Schellenberg J, Tamire-Woldemariam A, Walt G, Wickremasinghe D (2014) ['Scaling-up is a craft not a science': Catalysing scale-up of health innovations in Ethiopia, India and Nigeria.](https://www.ncbi.nlm.nih.gov/pubmed/25306407) Soc Sci Med. 2014 Nov;121:30-8. doi: 10.1016/j.socscimed.2014.09.046.  
     [↑](#endnote-ref-40)
41. Powell BJ, Stanick CF, Halko HM, Dorsey CN, Weiner BJ, Barwick MA, Damschroder LJ, Wensing M, Wolfenden L, Lewis CC (2017) [Toward criteria for pragmatic measurement in implementation research and practice: a stakeholder-driven approach using concept mapping](https://www.ncbi.nlm.nih.gov/pubmed/28974248). Implement Sci. 2017 Oct 3;12(1):118. doi: 10.1186/s13012-017-0649-x. Review  
     [↑](#endnote-ref-41)
42. George AS, LeFevre AE, Schleiff M, Mancuso A, Sacks E, Sarriot E (2018) [Hubris, humility and humanity: expanding evidence approaches for improving and sustaining community health programmes](https://www.ncbi.nlm.nih.gov/pubmed/29946489). BMJ Glob Health. 2018 Jun 15;3(3):e000811. doi: 10.1136/bmjgh-2018-000811  
     [↑](#endnote-ref-42)
43. Howie EK, Stevick ED. (2014) [The "ins" and "outs" of physical activity policy implementation: inadequate capacity, inappropriate outcome measures, and insufficient funds](https://www.ncbi.nlm.nih.gov/pubmed/25117892). J Sch Health. 2014 Sep;84(9):581-5. doi: 10.1111/josh.12182  
     [↑](#endnote-ref-43)
44. van Bodegom-Vos L, Davidoff F, Marang-van de Mheen PJ (2017) [Implementation and de-implementation: two sides of the same coin?](https://www.ncbi.nlm.nih.gov/pubmed/27512102) BMJ Qual Saf. 2017 Jun;26(6):495-501. doi: 10.1136/bmjqs-2016-005473  
     [↑](#endnote-ref-44)
45. St. Leger, L. (2005) [Questioning sustainability in health promotion projects and programs](https://academic.oup.com/heapro/article/20/4/317/2182105). *Health Promotion International, Dec;20*(4), 317-319.  
     [↑](#endnote-ref-45)
46. Sanders, K.E., Francis, K., Lum, M., Schiada, G. (2004). [Toward a grounded theory of sustainability in social service organizations: A systems point of view](https://onlinelibrary.wiley.com/doi/10.1002/sres.635). *Systems Research and Behavioral Science, 27(5)*, 567-578  
     [↑](#endnote-ref-46)
47. Swerissen, H., Crisp, B.R. (2004). [The sustainability of health promotion interventions for different levels of social organizations](https://www.ncbi.nlm.nih.gov/pubmed/14976180). Health Promotion International, 19(1), 123-130  
     [↑](#endnote-ref-47)
48. Andrea R. Fleiszer, Sonia E. Semenic, Judith A. Ritchie, Marie‐Claire Richer, Jean‐Louis Denis (2015) [The sustainability of healthcare innovations: a concept analysis](https://onlinelibrary.wiley.com/doi/abs/10.1111/jan.12633), Journal of Advanced Nursing, Volume71, Issue7, July 2015, Pages 1484-1498  
     [↑](#endnote-ref-48)
49. Ana Claudia Figueiro, Sydia Rosana de Araújo Oliveira, Zulmira Hartz, Yves Couturier, Jocelyne Bernier, Maria do Socorro Machado Freire, Isabella Samico, Maria Guadalupe Medina, Ronice Franco de Sa, Louise Potvin (2016) [A tool for exploring the dynamics of innovative interventions for public health: the critical event card](https://link.springer.com/article/10.1007/s00038-016-0861-5), International Journal of Public Health, March 2017, Volume 62, Issue 2, pp 177–186, <https://doi.org/10.1007/s00038-016-0861-5>  
     [↑](#endnote-ref-49)
50. Sydia Rosana de Araujo Oliveira, Maria Guadalupe Medina, Ana Cláudia Figueiró, Louise Potvin (2017) [Strategic factors for the sustainability of a health intervention at municipal level of Brazil](https://www.scielosp.org/article/csp/2017.v33n7/e00063516/), Cad. Saúde Pública 33 (7) 27 July 2017 • https://doi.org/10.1590/0102-311X00063516  
     [↑](#endnote-ref-50)
51. Indig D, Lee K, Grunseit A, Milat A, Bauman A. (2017) [Pathways for scaling up public health interventions](https://www.ncbi.nlm.nih.gov/pubmed/28764785). BMC Public Health. 2017 Aug 1;18(1):68. doi: 10.1186/s12889-017-4572-5. Review. Erratum in: [BMC Public Health. 2017 Sep 22;17 (1):736](https://www.ncbi.nlm.nih.gov/pubmed/28938882)  
     [↑](#endnote-ref-51)