# THE REFERENCE SITE COLLABORATIVE NETWORK OF THE EUROPEAN INNOVATION PARTNERSHIP ON ACTIVE AND HEALTHY AGEING

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*Abstract*

Seventy four Reference Sites of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) have been recognised by the European Commission in 2016 for their commitment to excellence in investing and scaling up innovative solutions for active and healthy ageing. The Reference Site Collaborative Network (RSCN) brings together the EIP on AHA Reference Sites awarded by the European Commission, and Candidate Reference Sites into a single forum. The overarching goals are to promote cooperation, share and transfer good practice and solutions in the development and scaling up of health and care strategies, policies and service delivery models, while at the same time supporting the action groups in their work. The RSCN aspires to be recognized by the EU Commission as the principal forum and authority representing all EIP on AHA Reference Sites. The RSCN will contribute to achieve the goals of the EIP on AHA by improving health and care outcomes for citizens across Europe, and the development of sustainable economic growth and the creation of jobs.

*Abbreviations*

AHA: active and healthy ageing
EIP: European Innovation Partnership
EIP on AHA: European Innovation Partnership on Active and Healthy Ageing
EU: European Union

EC: European Commission
RS: Reference Site
RSCN: Reference Site Collaborative Network

*Key words*
Active and healthy ageing, European Innovation Partnership on Active and Healthy Ageing, EIP on AHA, DG CONNECT, DG Santé

## I. INTRODUCTION

As populations continue to grow older it is important to support the process of ageing well, active and healthy, that is a priority objective [1]. The broad concept of active and healthy ageing (AHA) is the process of optimizing opportunities for health and social care to increase healthy life expectancy, healthy life years and quality of life for all people as they age [2,3]. AHA allows people to realize their potential for physical, social and mental wellbeing throughout the life course [4]. AHA also contributes to the sustainability of our health and social systems, reducing dependency and disability.

To tackle the potential and challenges of ageing in the EU, the EC - within its Innovation Union policy- launched the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) [5,6] in 2012. It continues to pursue a triple win for Europe (https://webgate.ec.europa.eu/eipaha/):

- Enabling EU citizens to lead healthy, active and independent lives while ageing.
- Improving the sustainability and efficiency of social and health care systems.
- Boosting and improving the competitiveness of the markets for innovative products and services, responding to the ageing challenge..

The EIP on AHA brings together public and private stakeholders to accelerate the deployment of major innovations by committing them to undertaking supply and demand side measures across sectors and the entire innovation chain. EIP on AHA does not replace existing decision-making processes. However, regional commitments to EIP on AHA can influence and inform policy decisions, support change management strategies and service delivery models, and therefore identify opportunities, and potential partners, under a range of funding programmes for the development of evidence based innovative solutions.

The EIP on AHA is a distinctive opportunity to help deliver on the policy objectives of the Europe 2020 flagships. Its objectives and approach are also in line with the principles and goals of the EU Health Strategy "Together for Health".

## II. REFERENCE SITES OF THE EUROPEAN INNOVATION PARTNERSHIP ON ACTIVE AND HEALTHY AGEING

Reference Sites (RS) are "ecosystems which comprise various players (including regional and/or local government authorities, cities, hospitals/care organisations, industry, SMEs and/or start-ups, research and innovation organisations including universities and civil society), that jointly implement a comprehensive, innovation-based approach to AHA, and can give evidence and concrete illustrations of the impact of such approaches on the ground" (https://ec.europa.eu/eip/ageing/reference-sites_en).

In 2012, 32 RS were awarded by the EU. Networking is a fundamental part of the EIP on AHA. RSs are pioneering together some of the most advanced innovative solutions to improve the lives of its ageing populations and through the partnership. Through "maturity assessment", referred to the extent to which the local ecosystem for AHA is developed, integrated and established, joint projects [7-14,15,16,17,18], meetings [3,11,19-22], scaling up activities [23], conferences and workshops (www.whinn.dk and https://syddansksundhedsinnovationeipaha.wordpress.com/news/ and http://www.southdenmark.be/media/1701/dacob-upscaling-workshops-introduktion.pdf) and study-visits (http://www.syddansksundhedsinnovation.dk/service-menu/aktuelt/2016/juli-dec2016/500-gaester-fra-20-forskellige-lande-besoegte-syddansk-sundhedsinnovation-i-2016/) collaboration has allowed RS to share good practices and build cross border activities in a way that maximizes outcomes and reduces risks associated to investing in innovation to deliver a holistic approach to the achievement of the EIP on AHA objectives.

Revised criteria were introduced in 2016 to define and evaluate the RS (http://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/2016_call_rs.pdf). One of the cornerstones within this was the requirement for the RS to build, and demonstrate that cross sectoral coalitions/alliances/partnerships have been implemented at regional level which support the research, development and adoption of new solutions and enable the scaling up and transferability of good practices within their region.

Seventy four RSs have been recognised in 2016 for their commitment to excellence in investing and scaling up innovative digital solutions for AHA (Table 1). Together the 74 RSs have committed to invest over € 4 billion in the next three years in the deployment and scaling up of digital innovation for AHA. This investment is expected to benefit over 5 million people in the next 3 years. It will also lay the foundations for a scalable EU market for digital innovation services and products meeting the needs of Europe's ageing population and their carers.

Cumulatively, the RS commit to invest in specific main areas of digital innovation:

- Health promotion through personalised coaching and citizens empowerment;
- Disease prevention through big data and risk stratification;
- Digitally-enabled platforms for chronic disease management;
- Tools for integrating hospital care and community/social care;
- Programmes for upgrading tele-health and tele-care

solutions to support independent living and quality of life of the ageing population;
- Multidisciplinary education, training and life-long learning innovative programs.

(Table 1. List and contacts of Reference Sites)

## III. REFERENCE SITE COLLABORATIVE NETWORK

It is beneficial to contribute to a continuous and constructive dialogue among the RS. Such a dialogue takes place participating in a collaborative network on an equal basis, regardless of their political and administrative structure. The Reference Site Collaborative Network (RSCN) brings together all EIP on AHA regions given RS status by the EC, and Candidate RS into a single forum.

### A. Vision

The RSCN aspires to be continually recognised by the EC as the principal forum and authority representing all EIP on AHA RS, and to establish connections with and across the Actions Groups (AG) in order to promote AHA. Our vision is to help our members accelerate the development, deployment and adoption of innovative health and social care solutions, proven AHA delivery models and digital solutions that provide real impact and contribute towards sustainability of services.

### B. Strategy

The overarching goals of the RSCN are to promote cooperation, share and transfer good practice in the implementationand scaling up of health and care strategies, policies and service delivery models. More specifically the RSCN will:

- Facilitate members to develop, share and adopt good practice and innovative solutions and technologies at scale;
- Influence and provide strategic input to bodies such as the EC, WHO, building on the knowledge and expertise of our regional members;
- Provide thought leadership through expert working groups;
- Provide a range of advisory and management services to members.

### C. Governance

Reference Sites have elected an RSCN Executive Board (EB) composed 8 Strategic Members and 2 Full Members appointed by the General Assembly (GA). All RS are eligible to participate in the GA, and one vote is allocated to each RS when conducting business. The EB has appointed two co- Chairs, two Deputy Vice Chairs and a Treasurer (Table 2).
(Table 2. RSCN Executive Baord)

EB Members are elected for 3 years and may be re-elected for one additional term. No Member may serve more than 2 consecutive terms. The EB meets at least twice per year.

The EB determines the strategies and actions of the RSCN. It will identify specific thematic Working Groups aimed at producing common operational projects in support of the EIP on AHA objectives.
The Secretariat of the RSCN will inform RS of new policy and funding developments; co-ordination of twinning and knowledge sharing events; establishing and maintaining links with candidate RS and Regions, the EU institutions and other organisations supporting EIP on AHA. The Secretariat shall be agreed and appointed by the EB. The secretariat is currently based in Montpellier (MACVIA France go.rscn@outlook.com)

### D. Membership

There are 5 categories of RSCN members (Table 3).
All RS are full members of the RSCN and one of their representatives will be a voting member at the GA. This representative will sit on the RSCN GA and will act on behalf of all the stakeholder organisations within the RS and ensure their views are represented. They will also be responsible for disseminating communications from the RSCN within their RS.
(Table 3. RSCN Membership categories)

## IV. CURRENT ACTIONS

### A. Transfer of innovation: Twinning support scheme

The 2016 Transfer of Innovation Twinning Support Scheme was a pilot scheme launched by the EC with the support of the ScaleAHA Team (http://www.scale-aha.eu/home.html) to support regional deployment of innovation by partners of the EIP on AHA through the reimbursement of expenses incurred in the transfer of innovative practices. Under this scheme, twenty pairs of RS (Table 4) have been provided with financial support for study visits between experts in the adopting and originator organisations. Twinning project represents an opportunity for both patients and healthcare professionals, cause it facilitate the assessment of impact of digitally enabled innovations in a uniform way.
(Table 4. List of Twinnings)

MThe first results are promising, and the process should be further refined taking into consideration lessons learnt and recommendations by the pilot twinning organisations. The final report (http://www.scaleaha.eu/fileadmin/scaleaha/documents/scaleaha_d5.4_finalstudyreport.pdf) presents interim results of the twinning activities, which include discussions about barriers and challenges faced, success factors leveraged, plans and strategies on moving forward, and recommendations for the future. It also presented twinning archetypes (Figure 1).

(Figure 1. Twinning archetypes)

The ScaleAHA team also provided a number of recommendations coming from the RS and the twinning

activities for policy makers, and for better organisation of future initiatives such as a second call for transfer of innovation. Other recommendations concerned future calls for RS, funding utilization support and the assessment of impact of digitally enabled innovations in a uniform way.

B. Interactions with the Commission

The RSCN is registered at the EC Transparency Register (ID: 583454420450-89) since January 2016. The Transparency Register has been set up to answer core questions such as what interests are being pursued, by whom and with what budgets. The system is operated jointly by the European Parliament and the EC. The RSCN is a member of the eHealth Stakeholder Group (eHSG), set up by DG SANTE and DG CNECT through a call for expression of interest in January 2016. Currently Andalusia (representing RSCN as its vice-chair) is rapporteur for the working group on Care Continuum within the eHSG. RSCN is responding to public consultations and contributing to the decision-making process at the EC level.

C. Interactions with the CSA

The WE4AHA Coordination and Support Action (CSA is aimed at advancing the effective, large-scale uptake and impact of Digital Innovation for AHA, mobilizing relevant stakeholders to help develop and implement three EU guided activities: Innovation 2 Market, Blueprint on Digital Transformation of Health and Care for the Ageing Society, and EIP on AHA. Hence, the RSCN has a bidirectional connection with the CSA: is supported by the CSA for some specific horizontal activities and ensures that the EU guided activities are developed by taking advantage of the contributions of all partners of the EIP on AHA.

Within the WE4AHA CSA, the RSCN will be responsible for some actions:

1. Twinning programs for large scale-up digital solutions;
2. Organize at least 6 thematic workshops including:
    a. Health Tourism Brussels, 27 February 2018): leader: PROMIS,
    b. POLLAR (CoP 2019),
    c. Thematic workshops in collaboration with EUREGHA,
    d. A call will be opened each year to obtain topics and locations from RS members. Part of funding will be available for these events;
3. 3. Support for event of regional stakeholders to be replicated across the EU;
4. 4. Help to launch the next call for RS;
5. 5. Identification of the key elements to map the quadruple helix ecosystem;.
6. 6. Evaluation of RS progress;
7. 7. Release content for dissemination activities.

D. Interactions with the other EU Organisations

The RSCN recognizes the benefit to be achieved from working closely with other EU networks and partners, particularly those whose aims, and goals overlap with its own. Nick Batey (RSCN) connects the work of the RSCN with that of EUREGHA. The RSCN also works with the ECHAlliance as part of the Coalition of the Willing (CoW).

E. Current RSCN involvement in EC projects

The RSCN is currently (December 2018) involved in three European Projects. VIGOUR, a 3rd Health Programme project, seeks to support care authorities in progressing the transformation of their health and care systems to provide sustainable models for integrated care. DigitalHealthEurope, a H2020 CSA project, will provide comprehensive, centralized support to the digital transformation of health and care (DTHC) priorities of the Digital Single Market. The project will support large-scale deployment of digital solutions for person-centered integrated care. EURIPHI, also a H2020 CSA project, has as its vision to build out around the Most Economic Advantageous Tender (MEAT) Value Based Procurement framework which will be made accessible with adaptions necessary to support the cross-border PPI leading to "MEAT Value Based PPI".

The inclusion of the RSCN in these projects highlights the strategic position of the organisation within the consortiums, acting as a catalyst to foster scaling-up across regions and countries. With the RSCN, the projects have first-hand access not only to regions which are innovation leaders, but also to regions who are less mature in their person-centred integrated care. The RSCN closely support tasks related to identifying best practices by helping to assess the characteristics and the impact of the innovative approach. It will facilitate partnerships with other regions for the updating of existing guidance material, the conduction of twinning activities and wider scaling-up guidance.

The RSCN is aiming at answering to the need for a collaborative approach to facilitate joint reflection and action in sharing and transferring best practices in the development and scaling up of health and care strategies, policies and service delivery models.

## IV. SOME EXAMPLES OF RSCN ACHIEVEMENTS

A. Programma Mattone Internazionale Salute

Established in 2013 as a project of the MoH in 2016, Programma Mattone Internazionale Salute (ProMIS) became an institutional structure aimed at creating a permanent dialogue and synergies among Italian Regions, as well as with the EU health policies and systems. ProMIS provides opportunities of information and discussion, organizing workshops and conferences, satisfying the needs jointly expressed by Italian regions. It also disseminates European calls, stimulating the participation of Italian clusters to the consortia and

supporting the regions in the coordination for the participation to the calls. The program has developed preparatory activities to support the Regions in their application to become a RS and to submit commitments, explaining the details of the calls, facilitating the access to the useful information in order to prepare the proposal, thus making the Italian Regions collaborate at their best with the other European Regions [24]. Among the 74 RSs awarded by the EC in 2016, 11 are Italian Regions that have been assigned one or more stars according to the maturity: Campania, Emilia Romagna, Friuli Venezia Giulia, Lazio, Liguria, Lombardy, Piedmont, Puglia, Tuscany, Veneto and the Autonomous Province of Trento.
In order to define a common RS "model" and give Regions a structure to assess the effectiveness/validity of their strategies, Italian Regions agreed to draft a document ***"Methodology for the Italian Reference Sites: Which organizational structure?"*** where RS management, methods and tools are described, supported by validation elements of the RS model at European level. Every year the updated version of "EIP-AHA Italy: the Italian experience in the framework of the European Innovation Partnership on Active and Healthy Ageing" is also published, which is the focal document describing Italian RS activity and all the relevant European and national initiatives linked with EIP-AHA.

B. Global Alliance Chronic Respiratory Diseases Regional Network (Turkey)

The Global Alliance Chronic Respiratory Diseases Regional Network is the National Control Program of Turkish MoH on chronic airway disease with 64 collaborating parties which can be used as a model for EIP on AHA RS [25,26].

C. Coimbra activities of the RSCN

Instituto Pedro Nunes, a member of Ageing@Coimbra reference site, was the local organizer of the Ambient Assisted Living Forum 2017 (2-4 October, 2017) [27]. The program of the meeting included the workshop "Bridges between Europe – integrating health and social care towards innovation" with representatives of RSCN (Maddalena Illario and João Malva). The RS Ageing@Coimbra has been leader of the innovative activity joining senior citizens and innovators in the Forum. From local Third Age Universities and nursing homes, 120 +65 people have been invited to visit the technological exhibitors in the Forum and to perform the evaluation of the technologies. At the end of this exercise, the most favorite technologies were ranked and a winner was selected. All the exposed technologies received an assessment report, including recommendations provided by the end-users [28].

D. Mobile Airways Sentinel network (MASK@Twinning)

The aim of MASK@Twinning is to transfer innovation from an App developed by the MACVIA-France (MASK, TLR9) [29-35] to other RSs [36]. MASK follows the criteria for Good Practices of the CHRODIS Joint Action [37] and its privacy is in line with the Article 28 EU General Data Protection Regulation (EU-GDPR) [38]. The phenotypic characteristics of rhinitis and asthma multimorbidity [39] in adults and the elderly are compared using validated information and communication technology (ICT) tools (i.e. the Allergy Diary and CARAT: Control of Allergic Rhinitis and Asthma Test) in 29 RSs, regions or countries across Europe and beyond. This will improve understanding, assessment of burden, diagnosis and management of rhinitis in the elderly by comparison with an adult population. Specific objectives are to: (i) assess the percentage of adults and elderly who are able to use the Allergy Diary, (ii) study phenotypic characteristics and treatment over a period of one year of rhinitis and asthma multimorbidity at baseline (cross-sectional study) and (iii) follow-up using visual analogue scale (VAS). This part of the study may provide some insight into the differences between the elderly and adults in terms of response to treatment and practice as well as precision medicine [40]. Finally (iv) work productivity is examined in adults. The first results of MASK@Twinning are very promising and over 400 patients have been recruited. A pilot study showed that the questionnaire for physicians (EUFOREA-ARIA website, www.euforea.eu/) [40] is appropriate. This project also allowed MASK to be deployed in the entire country with the national society in France and Germany. Moreover, MASK@Twinning has been endorsed by the European Academy of Allergy and Clinical Immunology (EAACI), the European Respiratory Society (ERS), the International Primary Care Airways Group (IPCRG), two major European patients' organisations (EFA, European Federation of Allergy and Airways Diseases Patients' Associations and ELF, European Lung Foundation) and an international patient's organization (GAAP) [41] . It is WHO Global Alliance against Chronic Respiratory Diseases (GARD) demonstration project. MASK@Twinning centers have been included in a 2018 EIT Health Innovation-by-Design project (POLLAR: Impact of Air Pollution in Asthma and Rhinitis).

E. Participation of RSCN to International Projects

RSCN co-sponsored a WHO-GARD meeting in Brussels on the impact of air pollution in chronic respiratory diseases (10th November, 2018). It is also co-sponsoring an EU Summit held by the Minister of Health of Lithuania on the management of chronic respiratory diseases (Vilnius, 23rd March, 2018) and the consensus meeting on self-management in airways diseases (EIT Health, WHO GARD), December 2018.

## V. RSCN CHANGE MANAGEMENT MODEL

The RSCN follows a change management strategy to accomplish its vision and mission. Although theories may seem abstract and impractical, they can help to solve common problems [42]. The 3-Step model of the Lewin's approach [43] dominated the change management theory

and practice for over 50 years. Although criticized, it is still used [44,45] and has great interest in its simplicity [46]. The model posits the 3-step sequence of change: unfreezing, moving, and refreezing [45,47]. Kotter [48] has added to the collective change knowledge to expand upon Lewin's original Theory (Table 5) [43].

(Table 5. The Kotter's model of change management Adapted from [45])

Many different projects have shown the importance of the EIP on AHA to achieve its goals. It is, however, urgent that the concept of AHA is more widely and rapidly translated into practice. The RSCN is one of the key tools of the EIP on AHA to transfer concepts to practice (Step1).

The 74 RS of the EIP on AHA represent an exceptional group committed to the deployment of AHA in EU regions and beyond. The RSCN represents a guiding coalition lead by its executive board and strategic members (Step2).

The RSCN vision and strategy are clearly defined (Step 3).

The change vision is disseminated through a dedicated website and using all means for communication. This paper is an important communication tool. A newsletter will be regularly published (Step 4).

Organizational processes and structures are in place and an ASBL is set and will help to remove the obstacles involved in the process of change. The Regional Events will help to empower others (Step 5).

Short term wins have already been obtained (see chapter 4) and a strategy for next year is in place (Step 6).

The goals of step 7 [48] are to achieve continuous improvement by analysing the success stories individually and improving from those individual experiences.

The goals of step 8 [48] are:

1. Discuss the successful stories related to change initiatives widely.
2. Ensure that the change becomes an integral part of the practice and is highly visible.
3. Ensure that the support of the existing as well as the new leaders continues to extend towards the change.

## REFERENCES

[1] Depp CA, Jeste DV. Definitions and predictors of successful aging: a comprehensive review of larger quantitative studies. Am J Geriatr Psychiatry 2006;14:6-20.

[2] Rechel B, Grundy E, Robine JM, et al. Ageing in the European Union. Lancet 2013;381:1312-22.

[3] Bousquet J, Kuh D, Bewick M, et al. Operational definition of active and healthy ageing (AHA): Framework concensus. J Nutr Health Aging 2015;19:955-60.

[4] Kuh D, Cooper R, Hardy R, Richards M, Ben-Shlomo Y. A life course approach to healthy ageing. Oxford 2014.

[5] Garcia-Lizana F. European innovation partnership on active and healthy aging: moving from policy to action. Gac Sanit 2013;27:459-62.

[6] Bousquet J, Michel J, Standberg T, Crooks G, Iakovidis I, Gomez M. The European Innovation Partnership on Active and Healthy Ageing: the European Geriatric Medicine introduces the EIP on AHA Column. Eur Geriatr Med 2014;5:361-2.

[7] de-Manuel-Keenoy E, David M, Mora J, et al. Activation of Stratification Strategies and Results of the interventions on frail patients of Healthcare Services (ASSEHS) DG Sanco ProjectNo. 2013 12 04. Eur Geriatr Med 2014;5:342-6.

[8] Keijser W, de-Manuel-Keenoy E, d'Angelantonio M, et al. DG Connect funded projects on information and communication technologies (ICT) for old age people: Beyond Silos, CareWell and SmartCare. J Nutr Health Aging 2016;20:1024-33.

[9] Bousquet J, Addis A, Adcock I, et al. Integrated care pathways for airway diseases (AIRWAYS-ICPs). Eur Respir J 2014;44:304-23.

[10] Bourret R, Bousquet J, J M, et al. MASK rhinitis, a single tool for integrated care pathways in allergic rhinitis. World Hosp Health Serv 2015;51:36-9.

[11] Bousquet J, Kowalski M, Michel J. The senioral policy in Poland uses the expertise of the European Innovation Partnership on Active and Healthy Ageing. Eur Geriatr Med 2015;6:in press.

[12] Liotta G, O'Caoimh R, Gilardi F, et al. Assessment of frailty in community-dwelling older adults residents in the Lazio region (Italy): A model to plan regional community-based services. Arch Gerontol Geriatr 2017;68:1-7.

[13] van Velsen L, Illario M, Jansen-Kosterink S, et al. A Community-Based, Technology-Supported Health Service for Detecting and Preventing Frailty among Older Adults: A Participatory Design Development Process. J Aging Res 2015;2015:216084.

[14] Menditto E, Guerriero F, Orlando V, et al. Self-Assessment of Adherence to Medication: A Case Study in Campania Region Community-Dwelling Population. J Aging Res 2015;2015:682503.

[15] Caoimh RO, Weathers E, O'Donnell R, et al. The Community Assessment of Risk Screening and Treatment Strategies (CARTS) – An Integrated Care Pathway to Manage Frailty and Functional Decline in Community Dwelling Older Adults. In: al HMe, ed. ICT4AgeingWell, CCIS 578. Switzerland: Springer International Publishing; 2016:1-16.

[16] Paul C, Teixeira L, Azevedo MJ, et al. Perceived Risk of Mental Health Problems in Primary Care. Front Aging Neurosci 2015;7:212.

[17] Liotta G, Orfila F, Vollenbroek-Hutten M, et al. The European Innovation Partnership on Active and Healthy Ageing Synergies: Protocol for a Prospective Observational Study to Measure the Impact of a Community-Based Program on Prevention and Mitigation of Frailty (ICP - PMF) in Community-Dwelling Older Adults. Transl Med UniSa 2016;15:53-66.

[18] Bousquet J, Bewick M, Cano A, et al. Building Bridges for Innovation in Ageing: Synergies between Action Groups of the EIP on AHA. J Nutr Health Aging 2017;21:92-104.
[19] Bousquet J, Anto JM, Berkouk K, et al. Developmental determinants in non-communicable chronic diseases and ageing. Thorax 2015;70:595-7.
[20] Bousquet J, Malva J, Nogues M, et al. Operational definition of active and healthy ageing (AHA): The European Innovation Partnership (EIP) on AHA Reference Site questionnaire J Am Med Dir Assoc 2015;16:1020-6.
[21] Bousquet J, Rosado Pinto J, Barbara C, et al. Portugal at the cross road of international chronic respiratory programmes. Rev Port Pneumol (2006) 2015;21:230-2.
[22] Samolinski B, Raciborski F, Bousquet J, et al. Development of Senioral Policy in Poland Eur Geriatr Med 2015;7:in press.
[23] Bousquet J, Farrell J, Crooks G, et al. Scaling up strategies of the chronic respiratory disease programme of the European Innovation Partnership on Active and Healthy Ageing (Action Plan B3: Area 5). Clin Transl Allergy 2016;6:29.
[24] Illario M, De Luca V, Tramontano G, Menditto E, Iaccarino G, Bertorello L, Palummeri E, Romano V, Moda G, Maggio M, Barbolini M, Leonardini L, Addis A. Italian EIP-AHA Working Group. The Italian reference sites of the European innovation partnership on active and healthy ageing: Progetto Mattone Internazionale as an enabling factor. Ann Ist Super Sanita 2017; 53(1):60-69. doi: 10.4415/ANN_17_01_12
[25] Yorgancioglu A, Turktas H, Kalayci O, et al. The WHO global alliance against chronic respiratory diseases in Turkey (GARD Turkey). Tuberk Toraks 2009;57:439-52.
[26] Yorgancioglu A, Yardim N, Ergun P, et al. Integration of GARD Turkey national program with other non-communicable diseases plans in Turkey. Tuberk Toraks 2010;58:213-28.
[27] Malva JO, Amado A, Rodrigues A, et al. The Quadruple Helix-Based Innovation Model of Reference Sites for Active and Healthy Ageing in Europe: The Ageing@Coimbra Case Study. Front Med 2018;5:132.
[28] Malva J, Amado A, Rodrigues A, et al. The quadruple helix-based innovation model of Reference Sites for Active and Healthy Ageing in Europe: The Ageing@Coimbra case study. Front Med 2018;in press.
[29] Bousquet J, Arnavielhe S, Bedbrook A, et al. The ARIA score of allergic rhinitis using mobile technology correlates with quality-of-life: The MASK study. Allergy 2017.
[30] Bousquet J, Bewick M, Arnavielhe S, et al. Work productivity in rhinitis using cell phones: The MASK pilot study. Allergy 2017;72:1475-84.
[31] Bousquet J, Caimmi DP, Bedbrook A, et al. Pilot study of mobile phone technology in allergic rhinitis in European countries: the MASK-rhinitis study. Allergy 2017;72:857-65.
[32] Bousquet J, VandenPlas O, Bewick M, et al. Work Productivity and Activity Impairment Allergic Specific (WPAI-AS) Questionnaire using Mobile Technology: The MASK study. J Investig Allergol Clin Immunol 2017.
[33] Caimmi D, Baiz N, Tanno LK, et al. Validation of the MASK-rhinitis visual analogue scale on smartphone screens to assess allergic rhinitis control. Clin Exp Allergy 2017;47:1526-33.
[34] Bousquet J, Hellings PW, Agache I, et al. ARIA 2016: Care pathways implementing emerging technologies for predictive medicine in rhinitis and asthma across the life cycle. Clin Transl Allergy 2016;6:47.
[35] Bousquet J, Arnavielhe S, Bedbrook A, et al. Treatment of allergic rhinitis using mobile technology with real world data: The MASK observational pilot study. Allergy 2018; In press.
[36] Bousquet J, Agache I, Aliberti MR, et al. Transfer of innovation on allergic rhinitis and asthma multimorbidity in the elderly (MACVIA-ARIA) - EIP on AHA Twinning Reference Site (GARD research demonstration project). Allergy 2018;73:77-92.
[37] Bousquet J, Onorato GL, Bachert C, et al. CHRODIS criteria applied to the MASK (MACVIA-ARIA Sentinel NetworK) Good Practice in allergic rhinitis: a SUNFRAIL report. Clin Transl Allergy 2017;7:37.
[38] Article 28 EU General Data Protection Regulation (EU-GDPR). [Internet] 2018 Available from: https://wwweugdprorg/.
[39] Cingi C, Gevaert P, Mosges R, et al. Multi-morbidities of allergic rhinitis in adults: European Academy of Allergy and Clinical Immunology Task Force Report. Clin Transl Allergy 2017;7:17.
[40] Hellings PW, Fokkens WJ, Bachert C, et al. Positioning the Principles of Precision Medicine in Care Pathways for Allergic Rhinitis and Chronic Rhinosinusitis - an EUFOREA-ARIA-EPOS-AIRWAYS ICP statement. Allergy 2017;72:1297-305.
[41] Hellings PW, Borrelli D, Pietikainen S, et al. European Summit on the Prevention and Self-Management of Chronic Respiratory Diseases: report of the European Union Parliament Summit (29 March 2017). Clin Transl Allergy 2017;7:49.
[42] Barrow JM, Toney-Butler TJ. Change, Management. StatPearls. Treasure Island (FL)2017.
[43] Lewin K. Defining the'field at a given time. Psychol Rev 1943;50:292.
[44] Burnes B. Kurt Lewin and the Planned Approach to Change: A Re-appraisal. J Manag Studies 2004;41:997-1002.
[45] Antwi M, Kale M. Change Management in Healthcare. Literature Review 2014.
[46] Bamford D, Daniel S. A case study of change management effectiveness within the NHS. J Change manag 2005;5:391-406.
[47] Bullock R, Batten D. It's just a phase we're going through: a review and synthesis of OD phase analysis. Group Org Manag 1985;10:383-412.
[48] Kotter J. Leading change. Boston, USA: Harvard Business School Press; 1996.

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| 34 | Île-de-France | France | Louis Potel | |
| 35 | Kiev-Zhitomir | Ukraine | Leonid Bogatyrchuk | |
| 36 | Kinzigtal | Germany | Dirk Günther | |
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| 73 | West Flanders Province | Belgium | Inge Taillieu | |
| 74 | Yorkshire and the Humber | United Kingdom | Stephen Stericker | |
| 75 | Zealand | Denmark | Esther Bülow Davidsen | |

**Table 1. List and contacts of Reference Sites**

| | |
|---|---|
| Co-chairs | J Bousquet (MACVIA-France), M Illario (Campania) |
| Vice-Chairs | N Batey (Wales), A Carriazo (Andalucia) |
| Treasurer | J Malva (Ageing@Coimbra) |
| Scientific adviser | N Guldemond (Delta Medica, NL) |
| Members | E Colgan (Northern Ireland), J Hajjam (Pays de la Loire), M Perälä-Heape (Oulu, Finland) |
| Adviser | J Farrell |

**Table 2. RSCN Executive Baord**

| | **Membership** | **Description** | **Paying fee*** | **Participation in GA, WG, conference** | **Voting right at GA** | **Ex Board member** |
|---|---|---|---|---|---|---|
| 1 | Full member | Full membership is open to all RS approved by the European Commission | No | Yes | Yes | Yes (up to 2) |
| 2 | Strategic member | RS that take active and leading roles in the network | In species | Yes | Yes | Yes (but max 10) |
| 3 | Honorary | • Individuals distinguished in | No | Yes | No | No |

| | | | | | | |
|---|---|---|---|---|---|---|
| | member | the fields of AHA<br>• They are appointed by the GA upon proposal from the Executive Board | | | | |
| 4 | Affiliate member | • Organisations not part of an existing RS but with an interest in pursuing similar goals<br>• Only legal entities duly constituted in accordance with the laws of their country of origin, can become an associate member<br>• They are appointed by the GA upon proposal from the Executive Board | In species | Yes | No | No |
| 5 | Observer | • Individuals with an interest in AHA who may contribute to the work of the RSCN<br>• They are appointed by the GA upon proposal from the Executive Board<br>• Individuals working for lobbying groups or for organisations with a commercial purpose will not be accepted as observers. | No | Can only participate, in an advisory capacity in the GA, the WG and the conferences upon invitation by the Chair. | No | No |

**Table 3. RSCN Membership categories**

| | **Originator 2016 RS name** | **Adopter(s) 2016 RS name** | **Contact person** |
|---|---|---|---|
| 1 | MACVIA-France Network (FR) | 1- Andalucia<br>2- Aragon<br>3- Campania<br>4- Catalonia<br>5- City of Helsinki<br>6- Coimbra<br>7- Heraklion<br>8- Kohln-Bohn Region<br>9- Life Tech Valley<br>10- Liguria<br>11- Lodz<br>12- Medical Delta<br>13- Milan Metropolitan - Bergamo Province<br>14- NHS 24<br>15- Northern Ireland<br>16- Olomouc<br>17- Pays de la Loire<br>18- Porto<br>19- Puglia<br>20- Regione Piemonte<br>21- Regione Toscany<br>22- Region of Southern Denmark<br>23- Turkey (Global Alliance Chronic<br>24- ARIA Sweden<br>25- ARIA Lithuania | Jean Bousquet, MACVIA<br>jean.bousquet@orange.fr |

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**Table 4. List of Twinnings**

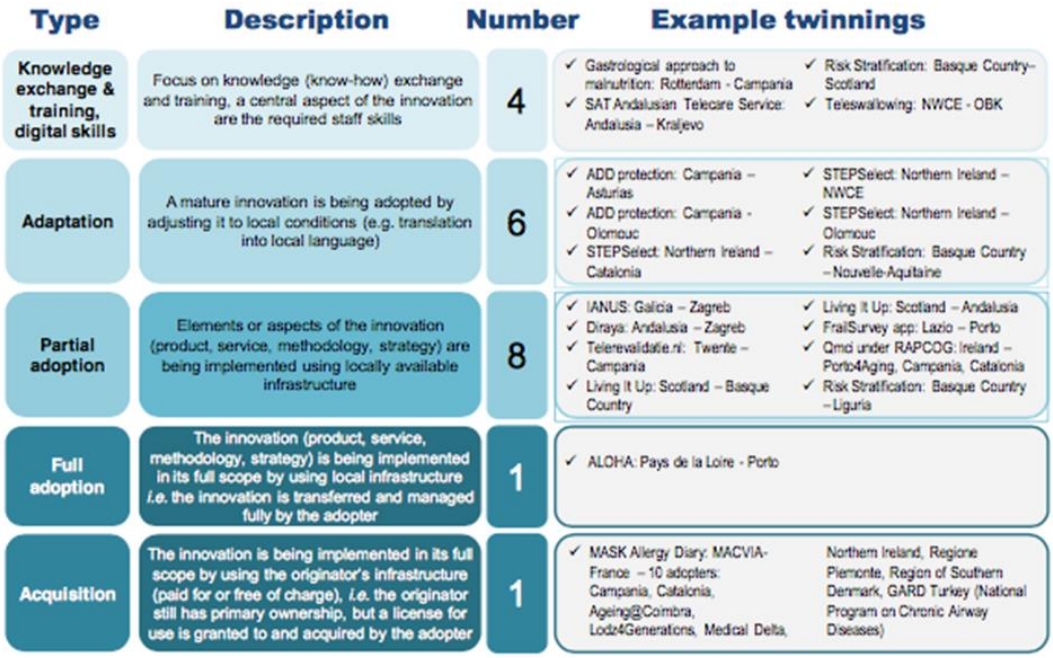


**Figure 1: Twinning archetypes**

| Lewin | Kotter |
|---|---|
| **Unfreezing** | Step 1: Establish a sense of urgency |
| | Step 2: Create a guiding coalition |
| | Step 3: Develop a vision and strategy |
| **Moving** | Step 4: Communicate the change vision |
| | Step 5: Empower others to act on the vision |
| | Step 6: Generate short-term wins |
| | Step 7: Consolidate gains and produce more change |
| **Refreezing** | Step 8: Anchor new approaches in the culture and institutionalize the changes |

**Table 5: The Kotter's model of change management - Adapted from**