DESIGNING COLLABORATIONS INVOLVING HTA: FINDING THE RHYTHM FOR SUCCESS

HTAi Global Policy Forum 2024 Background Paper

Contents

Introduction

Purpose and Scope of Background Paper

The purpose of this background paper is to inform discussions at the HTAi Global Policy Forum (GPF) meeting being held in San Diego, USA from the 27th to 29th January, 2024. The topic is "Designing Collaborations Involving HTA: Finding the Rhythm for Success".

This topic, refined through engagement with the GPF membership, was chosen because of the volume of existing and new collaborations involving HTA bodies and the desire by members to review what has worked well and what learnings can be applied to future efforts. There is an increasing sense of urgency for HTA bodies to collaborate to maintain the founding principles of transparency, inclusivity and impartiality. HTA is a transdisciplinary science (5) that, by its very nature, must include collaboration, with a generally consistent aim to provide fair, equitable access to safe and cost-effective technologies for patients(6). As a field, HTA has a long history of collaboration and participation in collaborations increasingly features in the strategic plans of many HTA bodies and HTA stakeholders. Collaboration has taken many forms, including between HTA bodies within and across countries (thereby providing collective power) and between HTA bodies and other stakeholders - most notably regulatory authorities but increasingly others such as payers, patient and caregiver organizations, clinicians/clinical societies and academia. The need for HTA bodies to collaborate with system stakeholders, such as regulators, is arguably increasing, as the number of drugs with early regulatory approval grows(7). However, many multi-stakeholder collaborations often fail to transform the "rhetoric into reality" (8).

A typology has been developed to enable the GPF to explore how current collaborations have been constructed and what their key features are, what has worked, what continues to work (i.e., what are the drivers and conditions according to each typology), and what might need to change. The focus is on determining the types of activities (corresponding to the lifecycle of a technology) that may be best suited to multi-stakeholder collaborative efforts and, if possible, to develop conditions that could be applied according to the typology to ensure that future collaborations are successful. The intention is that the GPF discussions remain policy-oriented, rather than at a detailed operational or methodological level. Outputs from the GPF will include a post-meeting report for GPF members, a freely available journal article, and a panel discussion at the 2024 HTAi Annual Meeting.

The background paper collates information available in the published literature obtained using a semi-structured literature review. This was supplemented by expert interviews with GPF members, HTA bodies and network representatives, HTAi interest group Chairs, academics and others to identify additional issues pertinent to the topic. Finally, review and further input from the HTAi GPF Organizing Committee, the wider HTAi GPF membership, and members of the HTAi Board was also considered during the development of this background paper.

The membership of the GPF is itself a collaboration that consists of an equal balance of industry members and HTA bodies, invited patients and HTAi Board members. The HTA bodies that are involved in the HTAi GPF are reasonably well established and the scope of the GPF will focus on the collaboration most relevant to these HTA environments. Consideration will be given to how the discussion may apply to more nascent HTA bodies and those in low- and middle-income countries (LMIC). To maximize the opportunities for fruitful discussions, the scope of the background paper has excluded collaborations where pricing has been the sole focus (due to the extensive differences in approaches to pricing and negotiation across settings).

Defining Collaboration

The Oxford English dictionary defines collaboration as the "act of working with another person or group of people to create or produce something"; it assumes that everyone is working together towards a shared goal (9). Everyone collaborates through life in some way (10) and collaboration is now considered by many as an accepted practice within all fields of science. Indeed, Magdalena Skipper, Editor in Chief of Nature, noted in 2021 that "when *Nature* was first published in 1869, single-author scientific publications were the norm. They are not only an exception but a true rarity today. Science has become a team activity"[1]. Concepts often included when discussing collaboration also include coordination and cooperation (known historically in the business setting as the '3Cs')(11). While the distinct definitions and use of these terms are subject to ongoing debate in the social science community(12), collaboration is typically considered as the more intensive form of working together and will be the focus of the GPF.

Reasons to Collaborate

As noted in an article by Bump et al in 2021(13), the drivers of collaboration have remained largely unchanged since its conceptualization in the 1800s. Bump notes that three of the central reasons for collaboration are to:

- manage risks that are difficult to manage independently;
- share knowledge and experience to accelerate learning and facilitate progress;
- and compare information and establish good practice, which is particularly important with an increasing specialization of individual skills that must be shared (14).

Further, as described by Schünemann et al. given the overlaps in the health sector there is an opportunity to develop a unifying broad framework; decisions or actions made in isolation from one and other on the same topic could cause "misleading, unnecessary, or conflicted inputs to the health system and therefore confusion and resource waste" (15). There may also be potential value in collaborating even if aligned positions and products are not developed; what is shared in a collaboration could lead to knowledge creation, which if managed carefully could lead to further changes in practice which could have an impact far beyond the scope and scale of the original collaboration (16).

Reasons to Collaborate in HTA

Most examples of collaboration in HTA have related to sharing knowledge, experience, comparing information and processes rather than managing risks, which has been done more independently. According to the EUNetHTA white paper (17), drivers of collaboration within HTA include:

increased efficiency and quality

increased credibility for the individual HTA body

shared knowledge with expertise and skills leveraged across organizations

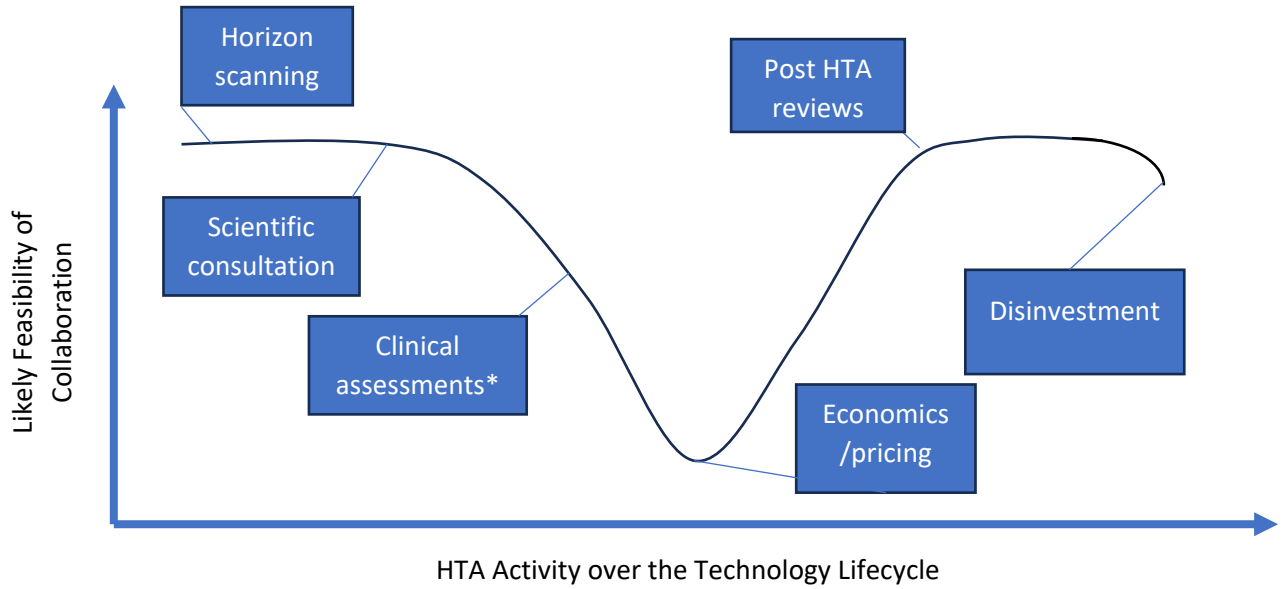
improved timeliness with collective (rather than individual) effort

[1] Why is scientific collaboration key? 4 experts explain | World Economic Forum (weforum.org)

A typology for the collaborative efforts within HTA for the purposes of this paper have been considered broadly according to the 'who', the 'what' and the 'how' of the various collaborations that involve HTA bodies and other stakeholder groups. The various processes or activities of how these collaborations generally operate with corresponding examples relevant to the HTA community are described in the table below:

Element	Processes and Activities	Some examples relevant to HTA
Who is included	Internal Teams	Between technical teams, project managers, across committees, with communication departments and other internal teams
	HTA bodies only: National networks Regional networks International networks	 Spanish HTA system RedETSA, EUNetHTA, HTAsiaLink INAHTA
	Multi-stakeholder (HTA &) patient organizations; industry; regulators etc	 Project HERCULES; Scientific consultations; Centre for Innovation and Regulatory Science;
What the collaboration is about	Methods	Surrogate endpoints for use in cost-effectiveness modelling
	Policy	HTAi Policy Forums; CADTH, ICER and NICE statement on transparency of clinical evidence
	Process	Innovative Licensing and Access Pathway (ILAP)
	Technologies	EuroSCAN/I-HTS
How the collaboration operates	Resourcing (e.g.,): Public-private Government Membership Not-for-profit entities	 Innovative Health Initiative (IHI) Oslo Medicines Initiative INAHTA Bellberry symposia
	Participation: Voluntary Mandatary	 WHO/Europe Novel Access to Medicines Platform EU HTAR

From expert interviews and review of the literature, the following graphic has been developed to highlight the potential of collaborating according to HTA activities across the lifecycle (as discussed at the 2022 HTAi GPF (18)). This has been done with pharmaceuticals primarily in mind, as it was noted that collaborations on non-pharmaceutical technologies (medical devices, diagnostics and newer technologies such as digital health) may have different feasibility issues at each stage. Collaboration on drugs may be facilitated by a better-defined roadmap to regulatory approval (i.e., clearer progress through phase of trial and types of studies conducted) and the strong collaborations that exist in the regulatory space for drugs (for example Project Orbis and the ACCESS Consortium). The figure below depicts the HTA lifecycle activities, but does not include work on process and methods (such as involving and engaging stakeholders) which are relevant at any stage of the technology lifecycle. As the figure notes, collaboration may be more feasible for certain topics (e.g., horizon scanning) than others (e.g. economic evaluation).



*The feasibility of collaborating on joint clinical assessments (on a methodological, process and product specific level) is still being determined through large scale collaborations such as the EU HTAR. Work is more developed on the adaptation of existing clinical assessments.

Requirements for Collaboration

The Center for Open Science has developed a 'Strategy for Culture Change' (19) that identifies the conditions needed for behavior and culture change. While there is already appetite for collaboration within the HTA community and other stakeholders, considering how this becomes embedded in social and cultural systems is warranted. Systems shape behavior by communicating 'norms' (i.e., what people should do); providing incentives; and imposing policies. The strategy for change therefore outlines five levels of intervention that are progressive; successful implementation of the higher levels (i.e., legislating policy) depends on successful implementation of the lower levels (i.e., providing technical infrastructure and access to materials so that collaboration is possible).

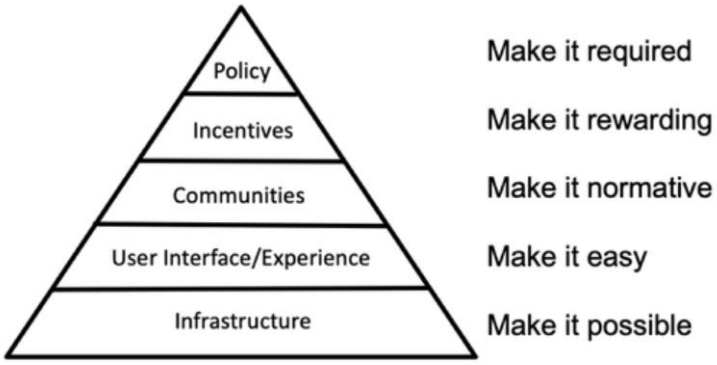


Figure 1-Strategy for Culture Change by Brian Nosek

Collaborations require resourcing at a foundational level. At a minimum, staff time and funding for infrastructure, travel, and materials may be required. As one example, it is estimated that €75 million

has been spent on the development of the efforts to collaborate on HTA in Europe so far (personal communication with expert informant). Next, a clear, shared understanding between parties is needed to make collaboration easy and then normal This is particularly important with international collaborations, where potential barriers and misunderstandings around culture, language and terminology need to be overcome; extra time and resourcing may be needed to do so.

Participation in a collaboration must offer tangible benefits for all stakeholders (incentivization) and this must be clearly articulated (20). Examples of successful incentives for HTA bodies include embedding participation in collaborations into organizational strategic plans and individual performance appraisals/metrics. However, incentives may be less direct for some stakeholders such as individual patients and caregivers. The need for clear communication about the aims and requirements of a collaboration, and clear feedback on how input has been used is important. While typically formal, many collaborations have voluntary participation (through a membership process or with a memorandum of understanding between parties). Making participation in collaborations mandatory, as part of the business objectives for senior staff or business plans or policy changes (e.g., legislation) is the ultimate condition for individuals and organizations to engage in collaborations; some believe that this step is vital for a collaboration to be truly effective (21).

Risks of Collaboration

There are, however, some warnings around collaboration. The "cult of collaboration", as coined by O'Flynn (22) proposes that the term 'collaboration' has become so pervasive that it now is used liberally as a term referring generally to any form of working together. Where 'collaboration is king', this could result in an exclusive focus on such efforts, which could be detrimental to individual organizations and projects. The lack of specificity about collaboration and its practice means that it risks being reduced to mere rhetoric without sustained practice or action (23). Some argue that within HTA, some outputs from collaboration could be as easily achieved with information sharing and reduced competition between stakeholders, and that true collaboration requires joint working, additional resources, takes time and may not always be necessary to achieve an organization's outputs. The aims and intent of a collaboration, resourcing implications and likely outputs should always be carefully considered prior to embarking on the journey of collaboration.

On a related note, there is a real risk that the proliferation of collaborations will result in multiple, smaller groups working within larger regional or international networks working on very similar, or even the same topic. If these smaller groups are not connected with each other (some may not even be aware of each other's efforts in the same space) then this is likely to result in duplication of effort and wasted resources or staff spread too thinly across efforts – some of the outcomes collaborations are established to reduce and avoid. Greater awareness of collaborations, sharing of knowledge and resources, prioritization of topics and streamlining efforts is needed to ensure that collaborations achieve tangible outcomes.

Enablers and Barriers

The enablers and barriers to collaboration as gathered during the literature review and stakeholder interviews are presented in brief in the table below according to our 'who', 'what' and 'how' typology, with further detail provided under the table:

	Enablers	**Barriers**

The 'Who'	• Foundation of trust and mutual respect between all stakeholders • Clear and open communication (including clarity on language and terminology where necessary) • A demonstrated commitment by all to the collaboration • Ensuring the collaboration includes a balance of all relevant partners (sufficient breadth, credibility, experience and expertise) and individuals attending meetings are able to actively contribute • Strong leadership and political will/support • Engagement/involvement of organizational decision makers where necessary	• Actual or perceived conflicts of interest • Diversity or unaligned value sets • Legal constraints when working with certain stakeholder types (for example patients and industry in certain geographies) • Stakeholder interest in 'lower order' issues which may detract from the overall aim of the collaboration • Cultural misunderstandings • Jurisdictional constraints (i.e., differing role and remits, different decision-making structures/hierarchies) • Lack of communication from one or more of the stakeholders involved (perception of imbalance in sharing)
The 'What'	• Clear and agreed scope and goals • Topic has a high level of shared importance • Clarity on terminology and frameworks used • Defined measures of impact and success • Legal agreements /non-disclosure arrangements may be helpful/required depending on the subject (i.e., commercially sensitive)	• Disagreements on intellectual property rights and on technology/knowledge transfer • Competing/conflicting/changing stakeholder priorities • Lack of transparency from all stakeholders • Lack of willingness or ability to change practices • Agreements on data and information sharing may be time consuming and may require expensive legal overview • Data breaches
The 'How'	• Clear governance structures • Clear definitions of roles and responsibilities • Open and transparent processes • Clarity on what can be shared and to who and when • Understanding communication methods and shared, timely, access to relevant platforms • Sufficient infrastructure and staff resources	• Lack of funding to support staff and develop infrastructure required • insufficient staff time (i.e., no dedicated point contact) and limited expertise/experience in the area • Insufficient external communication can limit awareness and subsequent implementation of outputs

Examples of Collaboration involving HTA bodies

This section includes examples of some collaborations that have occurred or are underway either between or involving HTA bodies and key stakeholder groups within the health ecosystem. See

Appendix A for a more comprehensive list of additional examples, although neither list should be considered exhaustive. Below is a graphic representing some of the key stakeholder groups that collaborate with HTA bodies and with each other.

It is important to note that not all collaborations that have been started have been deemed to be 'successful', some have been terminated, and some continue, but in different formats. The case studies have been chosen as they represent the various types of collaboration in the HTA field to provide key learnings pertaining to the enablers and barriers to collaboration.

Figure 2-visual representation of key stakeholder groups involved in collaborations with HTA bodies

Collaboration between HTA bodies

European HTA Regulation

A core example of a collaboration that is of great interest to many GPF members is the European HTA Regulation (EU HTAR), which will make collaboration at a product level on joint clinical assessments (JCA), scientific consultations and horizon scanning mandatory starting from 2025[2].

A variety of opinions and perspectives have been published on the journey of the EU HTAR that has spanned several decades (24), (25), (26). In 1994, the need for standardized HTA practices across Europe was recognized and the EUR-Assess project was established (27). Subsequent 3-yearly projects followed and these concluded that a permanent and sustainable network of European HTA agencies was needed (28). Despite the noted differences in structures and decision-making processes across the member states, the European network for HTA (EUnetHTA)[3] was launched in 2006. The philosophy of a "common core" of HTA reports came about and the first version of the EUnetHTA HTA Core Model was developed (29). This concept of being able to identify core elements that are transferable between HTA agencies and countries became the bedrock of further EUnetHTA developments and three consecutive joint actions were set up (17), (30). There was a desire by HTA bodies and the EU Commission to continue to

[2] Regulation on Health Technology Assessment (europa.eu)
[3] Home - EUnetHTA

explore collaborative activities, and an impact assessment was undertaken in 2016[4]. This assessment proposed that joint production of HTA would be resource saving to all parties, reducing duplication and accelerating patient access to technologies and outlined a structure for regulation on European HTA. The legislative initiative (now known as the EU HTAR) was formally adopted in December 2021 (31), (32) with implementation planned for 2025 (see Appendix B for an infographic on implementing the EU HTAR)[5].

The joint actions have shown that a common European assessment is feasible, with adaptation of jointly produced assessment reports for implementation at a national level (16). However, this was not without significant challenges and is still very much a work-in-progress. A quality management system to support the quality and standardization of processes and continuous improvement has been developed. Obstacles and concerns include (33), (34).

- different legal specifications and requirements across countries and 'country readiness'
- different understanding of HTA methodologies, policies and processes
- Population, Intervention, Comparator, Outcome (PICO) framework consolidation
- whether the EU HTAR will lead to a reduction in workloads as anticipated

Whether all relevant stakeholders have been, and will be, adequately included also remains an area of concern for many, particularly regarding patient input. The EU HTAR only includes provision for one meeting per year of a stakeholder network (i.e., a network comprised of all relevant stakeholders that are not HTA bodies or regulators). Sessions will be held with all stakeholders present (as opposed to separating out by stakeholder type) and it is unclear currently how many stakeholder meetings will actually happen each year and how these will run. The role of patients and patient organizations is still not fully clear and there are concerns that overly restrictive criteria for participation may limit the involvement of these groups (particularly for rare diseases). Concerns around adequate stakeholder involvement have also been raised by industry trade associations, with the European Federation of Pharmaceutical Industries and Associations (EFPIA)[6] and MedTech Europe[7].

The development of the EU HTAR has created new collaborations in response; for example, the European Capacity Building for Patients (EUCAPA) project[8] have been established. This is a EU4Health programme that has been co-funded by the European Union. It comprises of the European Organization for Rare Diseases (EURORDIS); a non-profit alliance of 1000 European rare disease patient organizations, and a university (UMIT Tirol). The European Patients Federation will also be involved in activating the patient community and will communicate and disseminate the project results to a wider audience to promote awareness and uptake. The aim of EUCAPA is to ensure patients and patient organizations have the necessary knowledge of HTA to be meaningfully involved and present their lived experiences to the EU HTAR scientific consultations and assessments.

International Network of Agencies for HTA

The International Network of Agencies for HTA (INAHTA) is a global membership-based organization that was founded to bring together HTA bodies from around the world; it primarily promotes and facilitates

[4] 2018_ia_final_en_0.pdf (europa.eu)
[5] Implementing the EU Health Technology Assessment Regulation (europa.eu)
[6] EFPIA statement on adoption of Health Technology Assessment Regulation
[7] EU Regulation on Health Technology Assessment (HTA) - MedTech Europe
[8] EUCAPA (eu-patient.eu)

the exchange of information and development of best practices in HTA(35). Established in 1993, INAHTA emerged as the importance of HTA in healthcare decision-making was becoming increasingly recognized worldwide (36). INAHTA has steadily grown in size, and currently has 53 HTA member organizations that "support decision making that affects over 1 billion people in 33 countries around the globe". INAHTA collaborates with other international organizations including the World Health Organization (WHO), the Guidelines International Network (GIN), HTAsiaLink, and others, and has a close working relationship with HTAi.

INAHTA primarily organizes annual congresses and online webinars, learning groups and workshops where members can share their research findings, discuss challenges, and learn from one another in a 'safe harbor' environment. INAHTA also directly or co-produce various key resources (such as the International HTA database[9] and the HTA Glossary – available in multiple languages[10], and coordinated the updated, internationally agreed, definition of HTA (6)). These resources reflect the role of INAHTA as one of primarily networking to enable information/knowledge sharing and capacity building, but that some additional collaborative efforts (such as white papers, position statements and methods guides) are developed from time to time.

INAHTA membership is comprised only of public (i.e., government funded) HTA bodies and so the drivers and values around commercially-driven aspects of HTA are typically consistent across them. However, the differences in remits across HTA bodies and health systems is a potential barrier, and appreciating this is the first step in being able to work efficiently together. Further, keeping discussions at a higher, strategic, level (rather than operational) allows for greater progress on the priority topics. The geographic differences (for example challenges in working with different time zones) but particularly differences in culture and language are important considerations that need to be handled sensitively to maintain the success of the collaboration (37).

Multi-stakeholder collaborations involving HTA bodies

Project HERCULES

Project HERCULES[11] is an international patient-led multi-stakeholder collaboration set up by Duchenne UK that has been established to develop tools and evidence to support HTAs for new treatments that have been developed for Duchenne Muscular Dystrophy (DMD). The aim of the project is to bring pharmaceutical companies together with patient organizations and HTA bodies to develop a robust and relevant evidence base for HTA bodies and payers to access, with a goal of accelerating the time to a reimbursement decision. Project HERCULES has developed a core central evidence base including a bespoke quality of life metric, a natural history model, a burden of illness study, and a core economic model that are fit for HTA purposes(38). The evidence directly reflects patient experience and is a demonstration of how patients can be fully engaged and involved in the development of an evidence base to gain regulatory approval and reimbursement, with a better understanding of the burden of illness and sufficiency of current quality-of-life measures (39).

Project HERCULES brought together a range of academic stakeholders. Within the scientific and research sectors, there are challenges that need to be overcome in order to work together; the nature of competitive research environments has not traditionally lent itself easily to collaborations. It is

[9] International HTA Database - INAHTA
[10] HtaGlossary.net | HomePage
[11] Duchenne UK launches Project HERCULES to help patients get faster access to potentially life-changing treatments | Duchenne UK

recognized that for collaboration to be successful, assigning roles, having clarity on purpose, and shared goals is needed. Ensuring that outputs are practical as opposed to academic is also very important. A further issue occurs when involving organizations that may have perceived or actual conflicts of interest (including patient organizations as well as research institutes); and the true depth and potential of the conflicts may not be clear. Challenges such as these need to be acknowledged and navigated; non-disclosure agreements and legally binding contracts may be required.

Green Park Collaborative[12]

The Green Park Collaborative (GPC) was launched in 2011 as an independent initiative of the now-closed Center for Medical Technology Policy (CMTP) as a multi-stakeholder collaboration including industry, public and private payers, HTA, clinicians, researchers, regulators, and patients. The key aim of the GPC was to develop condition and technology-specific study design and outcome measurement recommendations to guide the creation of evidence needed to inform clinical and payment decisions.

Some of the completed projects of the GPC include the development of core outcome sets for sickle cell disease; hemophilia; non-alcoholic steatohepatitis (NASH) (40) and evidence guidance documents on 'Treatment Switching and Comparing Advanced Cancer Therapy Sequencing' (41); Late phase drug studies for type 2 diabetes; clinical study design for Alzheimer's disease (42) and evaluation of clinical validity and utility of molecular diagnostic tests in adult oncology (43). In addition, a paper on designing preclinical trials of disease modifying agents for Alzheimer's disease[13], a white paper on promoting the adoption of core outcome sets[14], the 'Alzheimer's Initiative'[15] and a tool for decoding Real World Evidence were all developed.

While successful in developing multiple outputs, the GreenPark Collaborative was stopped when the Center for Medical Technology Policy (CMTP), that hosted it, closed in 2021[16]. This closure was due to the limited uptake and commitment from payer and health systems to use the core outcome sets for policy or coverage decisions.

European Innovative Health Initiative (IHI) [17]

At the end of 2021, the Innovative Medicines Initiative (IMI) became the Innovative Health Initiative (IHI). The IHI was formed to build upon the work of the IMI and work across a broader range of sectors with new partners and an updated governance structure. IMI and IHI are public-private partnerships between the European Union (represented by the European Commission) and the European pharmaceutical industry (EFPIA), and bring in other stakeholders such as academia, patients, regulators and HTA. IHI has expanded to include non-pharmaceutical manufacturers representing medical technology, biotechnology, digital health and vaccine industries. New projects will include digital health, big data and imaging and will also work more in disease prevention and gain a better understanding of the determinants of health and priority disease areas. This change was driven by the advent of new avenues of research and development with expected breakthroughs in medical device/drug

[12] Green Park Collaborative History - CMTP - EE2 (cmtpnet.org)

[13] CMTP Resources - Designing Late Phase Clinical Trials of Disease-modifying Agents to Delay or Prevent Dementia due to Alzheimer's Disease - CMTP - EE2 (cmtpnet.org)

[14] Promoting adoption of Core Outcome Sets - CMTP - CMTP - EE2 (cmtpnet.org)

[15] Meaningful evidence in Alzheimer's Disease - CMTP - CMTP - EE2 (cmtpnet.org)

[16] https://messnerdonna9.wixsite.com/cmtplegacyarchive

[17] Innovative Health Initiative | IHI Innovative Health Initiative (europa.eu)

combinations, diagnostics and artificial intelligence. Calls for IHI project proposals will continue to be open and competitive and based on draft topic texts.

Some examples of HTA-relevant projects produced by the IMI/IHI programs include:

- PREFER (Patient Preferences in Benefit Risk Assessments during the Drug Life Cycle)(44);
- PARADIGM (Patients Active in Research and Dialogues for an Improved Generation of Medicines) (45);
- GETREAL (Incorporating real-life clinical data into drug development) (46);
- IDERHA[18] (Integration of heterogeneous data and evidence towards regulatory and HTA acceptance); project still in progress.

Given the size and scale of IHI, interestingly there has been collaboration between the projects themselves. For example, PREFER and PARADIGM (two separate IMI-funded projects) signed a Memorandum of Understanding to identify areas of mutual interest; identify gaps that are hindering progress; establish collaborative activities to address these gaps and share knowledge and data. A joint statement from the two projects noted "there is an ample opportunity to leverage the work of these projects, to avoid duplication of efforts as well as maximise results"[19].

WHO Europe Access to Novel Medicines Platform[20]

The Oslo Medicines Initiative (2020 – 2022) was a collaboration between WHO/ Europe and the Norwegian Ministry of Health and Care Services and the Norwegian Medicines Agency, that identified the need to define more clearly the roles and social and ethical responsibilities of the public and private sectors with respect to research, development and affordable patient access to effective, novel, high-cost medicines. Ensuring that the progress that the life science industry is making towards the development of novel medicines does not increase inequity of access, or even financial hardship, due to high prices, is critical. Given that the demand for these specialized medicines is expected to grow and health systems are already struggling in the post-pandemic setting, collective action is required to achieve universal health coverage.

The Oslo Medicines Initiative (OMI) was the foundation for the establishment of the WHO/Europe Access to Novel Medicines Platform which is a unique multistakeholder collaboration mechanism. WHO is acting as a neutral facilitator so that the public and private sector, non-governmental organizations and other partners can work together and agree on actions that will ensure equitable patient access to novel medicines in Europe, while safeguarding the sustainability of health care systems and the innovation process. Four working groups with the themes of transparency, solidarity, sustainability and novel antimicrobials have been established to meet the objectives of the platform.

The collaborative aspects of the OMI were impacted significantly by the pandemic; however this time allowed the background technical work to be undertaken and discussions to work out how such a structure (where industry, patients and partners can collaborate directly with Member States within the mandate of WHO) could operate. There is now agreement on the indicators of success for the platform with variable perceptions of risk according to stakeholder type. In addition, entry criteria have had to be established to ensure all the regional stakeholders are included with a focus on those that are operating

[18] Welcome to IDERHA | IDERHA
[19] PARADIGM and PREFER connect to make patient engagement in medicines R&D a greater reality - PREFER (imi-prefer.eu)
[20] WHO/Europe Access to Novel Medicines Platform

at a regional (rather than national) level. The terms of reference for the platform and the working groups have been finalized and two meetings held which have produced a series of proposals. Feedback from stakeholders has been very positive and WHO Europe is supporting stakeholder to engage constructively. Resource mobilization to support implementation of the actions and demonstration projects is a priority.

What is Working and What needs to Change?

The responses collated during the interviews and from the available literature on the examples of collaboration in the HTA field have been considered to determine what appears to be working and what might need to change to promote progress. Selected examples are briefly described in the table below and are elaborated further in the subsequent text.

	HTA relevant examples that have worked well	**HTA relevant examples where there have been challenges**
The 'Who'	The HTAi Interest Groups are examples of international, multi-stakeholder groups that have been collaborating for many years across multiple areas of HTA. With a focus on methodological and process issues, the HTAi interest groups have developed white papers, position statements, tools checklists and provided avenues cross-country mentoring and support. One example of a particularly prolific interest group (in terms of outputs) is the HTAi Patient and Citizen Involvement Group (PCIG) have many projects that have enhanced patient engagement in the HTA process. There are growing number of examples of patients co-designing elements of the HTA process (e.g., Health Technology Wales and Australia). INAHTA is an example of a collaborative network that consists of HTA bodies that share similar value sets and handle geographical and cultural differences with sensitivity.	Red de Evaluacion de Tecnologias en Salud de las Americas (RedETSA); the "regional database of HTA reports in South America", has struggled to maintain momentum. The inclusion of the 'right' stakeholders (i.e., those with time and decision-making authority) has been difficult in changing political environments with changing remits for HTA bodies and others. This has made progress slower than hoped. There are noted challenges with patient involvement in regions such as Asia, and for HTA bodies to work with industry. There is a lack of trust and cultural issues that persist.
The 'What'	EuroScan (now International-HealthTechScan, I-HTS) is an example of collaboration on horizon scanning. This began at a European level and represents multiple regions. Working groups on surrogate outcomes, core outcome sets (such as the	Collaborations involving pricing and economics have been found (almost universally) challenging. This is likely due to differences in roles and remits within health systems, jurisdictional contexts, and societal values*.

	GreenPark Collaborative) have successfully worked together on methods and policy issues.	
The 'How'	Forums such as the HTAi Policy Forums, Centre for Innovation in Regulatory Science (CIRS) and the New Drug Development Paradigms (NEWDIGS) bring together various, relevant stakeholders with codes of conduct/Chatham House Rule(47), allow multiple networking (relationship building) time, utilize breakout group structures. Public-private partnerships (e.g., the Innovative Health Initiative) allow contributions from industry that may be more transparently managed with regards to potential conflicts of interest (for patients and government bodies).	Staff turnover (across all stakeholder groups) was noted as a key issue; particularly notable since COVID. This was considered detrimental to the progress of a number of collaborations (for example the work undertaken by Norwegian Institute for Public Health [NIPH] in Ghana). Funding constraints was noted as a universal issue. Examples where funding has been lost or terminated and collaborative activities ceased include the international Decision Support Initiative (iDSI) and CMTP.

*The Belgium, Netherlands, Luxembourg, Austria (BeNeLuxA) initiative is a noticeable exception which pools resources to develop joint HTAs and once these are completed there is joint negotiation with companies to establish fair and cost-effective prices. Working as a group, the countries aim to secure better pricing than they would achieve individually.

The 'Who'

- **Collaborations take time to be effective and should be based on mutually agreed goals.**
- **Open, honest conversations between organizations that are built on trust and respect are common foundations of successful collaborations. Participants need patience, open-mindedness, determination and belief in the value of collaboration.**
- **Collaborations need to take care to ensure all relevant stakeholder groups are engaged.**
- **Where collaborations involve many stakeholders, there may be differences in value sets (for example, if some organizations are driven by commercial value sets which may differ to the value sets held by public agencies).**
- **Participants must be transparent and have flexibility and ongoing networking to build a solid foundation of trust and awareness of all relevant parties is needed (forums such as the GPF itself, interest groups and conferences can provide the basis for such relationship building).**

Including sufficient depth and breadth of expertise can be a challenge; particularly for niche areas (i.e., clinical experience of rare diseases or statistical expertise in particular methods). Avoiding burn out for these individuals while maintaining momentum can be hard to achieve. Stakeholder mapping to work out who needs to be engaged for a collaboration to be successful is an important early step; and may require grey literature and website review to find the relevant groups. One such example was conducted by the Agency for Care Effectiveness in Singapore when establishing their Consumer Engagement and

Education team (poster REF[21], publication in press). Such mapping ensures that an inherent bias is not introduced by inviting only organizations that are already known.

Working together at any level typically requires:

- individuals or organizations to be like-minded (or at least share some common visions), but this is complex (48)
- dynamic leadership, political will and a strong champion to lead the agenda of the collaboration
- roles and responsibilities of all organizations/individuals to be clearly articulated with a balance between participants so there is no perception of overt dominance (either through personalities or through the resourcing they may provide)
- the right timing and the relevant organizations to know each other and be primed to collaborate, so that when funding and research opportunities present, they can be efficiently utilized.

Some key stakeholder groups involved in collaborations with HTA bodies include:

Patients and caregivers and/or patient and caregiver organizations:

- While patient advocacy groups can be effective in collaborations, sometimes the direct lived patient experience can be "lost" when engaging with larger groups (49)
- Increasingly co-designed processes with HTA bodies and patients involved in designing processes for engagement with HTA bodies and others are being developed (such as currently being designed in Australia[22]). These approaches require groups to be pro-active, responsive and truly "bought-in" to the co-design process. Documenting the efforts for future learnings and knowledge transfer is important (50).
- Navigating the perceptions of potential conflicts (particularly if funding from industry is involved) is important. There can be cultural differences, and legal frameworks can even prohibit such activity (which has happened in various countries in Asia as an example). The Patient Voice Initiative have published a checklist for companies on how interactions can become non-transactional to empower patient contributions[23].
- Cultural impacts of patient involvement is also globally diverse; in certain cultures, there are hierarchical impacts meaning that patients do not feel empowered to engage fully in a collaboration with clinicians and government organizations. The introduction of frameworks and communities of practice can help support patients and patient representatives, such as the framework on patient and public involvement produced in Brazil (51) and others as described by Single et al. (52).

Pharmaceutical and medical technology industry:

- Collaborations with industry have increased in recent years, particularly around horizon scanning, early scientific consultations through to greater involvement in the processes for HTA for reimbursement round the world. There remain regions however where such collaborations

[21] ping-tee_final.pdf (ace-hta.gov.sg)
[22] Co-design of an Enhanced Consumer Engagement Process | Australian Government Department of Health and Aged Care
[23] Interacting with patient communities Checklist for pharma industries (patientvoiceinitiative.org)

are much more limited due to the perception of conflicts of interests. Transparency and frameworks for conducting these activities have been critical in their establishment.

- Collaborations have also involved greater linkages with regulatory authorities and HTA bodies and also academic institutions to develop methodologies for HTA and gather data and evidence needed for HTA activities. Industry representatives often note that a shared goal is the "timely access to innovative and effective healthcare technologies while ensuring value for patients and the healthcare system" (expert informant).
- Industry partners contribute product-specific expertise and relevant data (including clinical trial results and observational data). Resources (including financial support) for collaborations are also often provided by industry partners to collaborations and this can be as an individual company, or as part of broader industry collaborations/trade association or in public-private partnerships. Further, industry can support and even provide training and capacity building programs.

Clinicians and healthcare providers:

- As lifecycle approaches to HTA activities are being explored and adopted, the involvement of this stakeholder group becomes critical.
- Collaboration on the development of core outcome sets such as the International Consortium on Health Outcomes Measurement (ICHOM)[24]; Core Outcome Measures in Effectiveness Trials (COMET)[25] ;and Outcome Measures in Rheumatology (OMERACT)[26] are examples of collaborations defining global sets of outcome measures what matters most to patients and better determining the value of new technologies.
- GINAHTA (a collaboration between the GIN and INAHTA) is an additional example of HTA bodies working with clinicians and clinical guideline developers established to explore common methods and sharing of knowledge.

Payers and health system, policy makers, or other 'end users' of HTA reports:

- There have been some approaches linking demand, prioritization and topic selection, for example in the Scandinavian countries where priority setting became part of the government agenda comparatively early (53), (54).
- The FINOSE (Nordic HTA collaboration) assessment of Libmeldy resulted in a joint payment agreement with the NLF (Nordic payer collaboration)[27].
- Concerns around the use of transparent criteria (55) and the inclusion of social values (such as placing differential value on treatments according to disease severity)(56) have been raised.
- There are other HTA bodies that do include payers and health system policy makers in priority setting (see for example the supplementary material on the Evidence-informed deliberative processes for health benefit package design by Radboud University Medical Center (57)).

[24] ICHOM - Value Based Healthcare, Improving Patient Outcomes
[25] COMET Initiative | Home (comet-initiative.org)
[26] OMERACT – OMERACT is a global, volunteer-driven, not for profit organization committed to improving outcomes for patients with autoimmune and musculoskeletal diseases through advancing the design and quality of clinical studies.
[27] Outcome of joint negotiations for Libmeldy | BeNeLuxA

- NICE is planning to introduce a strategy for medical technologies topic intelligence to "proactively and systematically gather information to rapidly identify priority areas for health and social care" so that suitable medical technologies are selected for national evaluation[28].
- Ensuring that 'end users' are considered and involved in collaborations that involve HTA bodies will help technologies be better implemented in the health system as it will interconnect the stakeholders and allow greater consideration of organizational aspects when undertaking HTA.

The 'What'

- **The need for the "right" topic to collaborate on is essential in any collaboration. This is needed to ensure that the topic requires collaborative efforts and is of high relevance to all organizations involved; this will likely result in higher engagement of all parties in the collaboration.**
- **Once the right topic is mutually identified and agreed, then this must be communicated so that the aim of the collaboration is clear.**
- **The focus and scope of a collaboration may change over time; some of the most successful and longstanding collaborations have grown over time; for example, from small information-sharing networks to larger and more diverse collaborations that work on methods and process developments.**

In the HTA field, there has been more collaboration on science and methods (for example on the use of surrogate outcomes and methods for controlling for treatment switching). This may be because collaborations on methods:

- involve decisions that don't have immediate consequences, (i.e., changes to methods), and are more successful than working in a "pressure cooker" environment (i.e., rapid HTA recommendations) as the latter can tend to be more stressful and place collaborations under strain (expert informant opinion).
- can be a constructive and valuable approach to ensure there is consistency, rigor and transparency across HTA bodies. This might include collaborating on new methods for analyzing data, surrogate outcomes, developing economic models and handling of different data types (such as real world data and/or evidence). Collaboration of this nature is most effective where the HTA bodies have similar value sets and general approach to methods.

Collaborating on policy and processes can help ensure that HTA is conducted in a systematic, transparent and equitable manner. This form of collaboration may not require harmonization across all aspects of HTA conducted by the various HTA bodies (i.e., the specific roles and remits of HTA bodies may vary) but would likely aim to improve efficiencies in workstreams. Examples may include:

- how assessments are conducted and when
- what technologies might be prioritized for assessment
- how deliberative processes are conducted
- who should be involved in the HTA process and when.

[28] 2 Strategy for medical technologies topic intelligence | Early value assessment interim statement | Guidance | NICE

Where HTA bodies have worked together on technology specific activities, there is a clear peak in collaborations at the early and later stages of the technology lifecycle – for example horizon scanning and scientific consultations/early dialogue and then again in the post HTA/ review space (for example on registries to collect data). The ability to do this has been on a basis of trust built over years and through the development of quality frameworks and standards. This is necessary so that the work conducted by one HTA body is considered reliable and can then be adapted or adopted by another HTA body. Collaboration on economics and pricing appears to be the most challenging area for HTA bodies and other stakeholders; this is likely due to the differences in remits and also the impact of societal values and jurisdictional contexts when considering health system budgets.

The 'How'

- **Adequately resourcing collaborations is essential, not just at the start but also for the time it takes for the collaboration to establish and produce outputs; this often takes longer than can be initially expected.**
- **For any longer-term or ongoing collaboration then resources and funding must be sustainable.**
- **The appointment of dedicated "point contacts"; staff members who have responsibility (with adequate time available) to communicate within their own organization and coordinate and/or directly participate in the collaboration themselves is a feature of successful collaborations.**
- **Having multiple meetings and opportunities for members to develop working relationships and trust over time works well.**
- **Case studies and piloting approaches (such as the 'sandbox' method), could be considered, particularly when working with innovative and disruptive health technologies.**

Resourcing collaborations poses challenges for organizations facing budget constraints and is a risk if the desired goals of the collaboration are not achieved. In many cases, conducting 'business as usual' already consumes all available resources for an HTA body (with many reporting ongoing shortfalls), making it a significant strain to initiate and effectively participate in collaborations. Without sufficient resources collaborations may fail due to inadequate time and staff able devoted to the aims of the project. Noting that contributing to collaborations is resource intensive for all involved, examples such as the IMI/IHI and the recent call to action by FDA for public-private partnership and more pre-competitive partnerships to collaborate on challenges shared by many[29] is a relevant resourcing model. Public-private partnerships that are carefully managed and are representative (as opposed to patient organizations receiving funding directly from industry) may result in a more transparent way to fund patient involvement in collaborations.

There are multiple models of effective collaborations, and the governance structures vary between different collaborations (usually driven by the size and diversity of a collaboration). These also may change over time, based on changing aims and objectives, as trust is built and the collaborations may also change in terms of the number of organizations involved (58). However, some of the common challenges include:

[29] Creating a Public-Private Partnership to Support Development of Anti-Cancer Therapies for Ultra-Rare Tumor Indications | FDA

- overly complex governance structures with too many working groups or committees; these can make achieving consensus and progress difficult;
- having very small and exclusive leadership groups can mean that the full benefits of collaborating are not met and there can be disengagement by those outside of the leadership and a lack of breadth in skills and experience.
- ambiguity over who does what and when, particularly if the work of one group is to be directed or is dependent on the work of another (as is the case of the EU HTAR) can cause delays. Careful project planning and clear communication are essential.
- lack of dedicated staff time to allow them to participate in collaborations rather than adding it on to business-as-usual activities.
- Evaluating the value and impact of collaboration (for example to justify ongoing funding)(59). Collaboration can only be considered effective if groups achieve more as a group than individual members would have achieved on their own within the same timeframe, however determining this can be overly time-consuming and many benefits of collaboration may be intangible and impossible to measure efficiently.

The most common elements of how successful collaborations operate appear to include:

- having a respectful, professional and solution-focused mindset that is established early and nurtured as required with strong facilitation.
- setting rules for behavior and a code of conduct (for example, conducting meetings under the Chatham House Rule, as per the HTAi policy forum meetings). This may also extend to the use of terminology between organizations which is particularly important when working with diverse stakeholders (e.g., including industry, patients and clinicians) from multiple countries.
- keeping focused on innovative and creative solutions that all stakeholders can agree upon. Taking a case-based approach can help keep the collaboration practical and grounded, without becoming overly theoretical, to deliver results that are implementable. Novel 'sandbox' approaches[30], particularly where the topics are very innovative (not yet widely used in the HTA community) can provide 'safe spaces' in which to test ideas and develop collaborative outputs.
- larger collaborations are often broken into smaller working groups and/or have breakout discussions during larger collaborative meetings (as done with NEWDIGS, the HTAi Policy Forum meetings and CIRS forums). This provides opportunities for people to feel heard, and can help build relationships, and mix diverse stakeholders and find innovative solutions. This approach works best when groups are balanced, of a manageable size and discussions are time-limited and with clear questions.
- One example approach of building in quality improvement was the implementation of small learning cycles ("plan, do, see, act") as was a feature of the EUnetHTA collaboration (60).

Finally, the impact of the COVID-19 pandemic has changed the way in which we collaborate. Forced remote interactions and delays while organizations shifted to pandemic responses meant that some collaborations were put on hold. While this has negative connotations, some experts noted that delays meant that groups were able to spend longer developing methods and hypotheses for testing (such as was the case for the WHO/Europe Access to Novel Medicines Platform). While the dynamics of

[30] A 'safe space' for addressing complex health technology assessment challenges | Blogs | News | NICE

collaborations that are virtual are totally different to in-person meetings, this brings both advantages and disadvantages:

- Remote collaboration can be more equitable (in terms of geography and socioeconomic factors); brings environmental benefits; allows asynchronous working.
- In-person working is more engaging and allows trust and strong working relationships to be established; this may be even more important due to the global "great resignation" since the pandemic (61) with greater staff turnover in many industries observed.

Brief examples of collaborations in other fields (regulatory authorities and climate science) have been reviewed and provided in Appendix C for additional reading.

Key Discussion Points

Below is a summary of the key discussion points contained within this document, that may serve as a useful guide for the discussions at the GPF:

- **Why do we collaborate across HTA bodies and beyond?**
  - What is the aim of collaboration, and what do we expect ?
  - How can the performance, value and impact of collaboration in HTA be measured? How should we define the outcome of a good collaboration in HTA?
  - Are there situations/activities that are particularly suited to collaboration?
  - Are there different models of collaboration that might be appropriate for different activities and according to technology type (e.g., drugs, devices, digital health etc)?
- **What are the necessary requirements and conditions for collaboration in HTA?**
  - Are there specific conditions required for specific types of collaborations (i.e., are there priority or essential conditions that can be focused upon in certain circumstances)?
  - How can collaborations be most effectively established, operationalized and resourced throughout the life of the collaboration?
  - Are there any good practice guidelines or principles that could be produced and could this be according to the type of collaboration identified?
- **Which stakeholders should be involved in which collaborations?**
  - Should there be any groups that should always be included (e.g., patients, payers, industry etc.)?
  - How should stakeholder representatives be chosen and how should they interact?
  - What are the most important incentivization considerations for collaboration when it is not mandated?
- **Are there too many collaborations?**
  - Should smaller collaborations be streamlined and convened in a more systematic way?
  - Is there ever "too much" collaboration? How do we know when to stop collaborating?
  - How should success from one collaboration be transferred to another? How can it/should it be 'scaled up' and/or translated into other settings/countries?
  - What are the opportunities for existing collaborations to work with other collaborations (e.g., regulatory and HTA body collaborations); what are the conditions and pre-requisites for this to be successful?
- **What are the barriers to collaboration?**
  - Why do collaborations fail?
  - Why can the process be slow; are there any approaches that could make collaboration more efficient?
  - What is the impact of the COVID-19 pandemic on current and future collaborations? How can any negative impacts be mitigated?
- **What does the future of collaboration involving HTA bodies look like?**
  - Are there elements of current collaborations within HTA that can be improved upon?
  - Are there any collaborations (within and beyond HTA) that still need to be explored?
  - Is greater collaboration becoming required with the changing healthcare landscape and development of complex technologies?

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Appendix A

Examples of HTA bodies collaborating with other HTA bodies

Name, year established	Participating Organizations	Aim(s)	Output(s)
Aus-Can-NZ-UK, established 2021 and updated agreement in 2023.	NICE, CADTH, the Australian Government Department of Health and Aged Care (Pharmaceutical Benefits Advisory Committee (PBAC) and the Medical Services Advisory Committee (MSAC)), Health Improvement Scotland (including Scottish Medicines Consortium and Scottish Health Technologies Group), Health Technology Wales (HTW) the All Wales Therapeutics and Toxicology Centre (AWTTC), the Institut national d'excellence en santé et en services sociaux (INESSS) and Pharmac.	The Partner Organizations have identified the following areas of substantive work for joint collaboration over the course of this Arrangement: • Programme 1: Pharmaceutical HTA work sharing • Programme 2: Medical technology (device) HTA work sharing • Programme 3: Forward scanning/horizon scanning • Programme 4: digital evaluation framework • Priority 5: Topic Intelligence The working level contacts will have overall ownership for progress of the priority areas. Progress against the joint areas will be reviewed at frequent intervals.	This Collaboration Arrangement came into effect from the date of the final Partner Organization signature (July 2023). It will be reviewed every two years. Outputs are pending due to the nascent nature of this collaboration.

BeNeLuxAIr, 2015[31]	During the informal meeting of European Ministers for Employment, Social Policy, Health and Consumer Affairs in Riga, Latvia, in April 2015, the health ministers of Belgium and the Netherlands announced their initiative to explore possible collaboration on pharmaceutical policy. This included price negotiations with pharmaceutical companies for orphan medicinal products. In September 2015, the Grand Duchy of Luxembourg joined the Belgium-Netherlands project. Austria joined the cooperation initiative in June 2016, and since then this project has been named 'Beneluxa'. In June 2018 also Ireland joined the Beneluxa initiative with	The Beneluxa initiative aims for sustainable access to, and appropriate use of, medicines in the participating countries and aims to: -Anticipate on national health challenges effectively by having early insight in new pharmaceutical products and in new indications of existing products coming to the market (i.e., Horizon Scanning); -Increase the efficiency of the assessment, pricing and reimbursement of medicines by exchanging expertise and by mutual recognition of Health Technology Assessments; -Share policy expertise and best practices; Improve the payers' position in the market: by improving their knowledge on products, usage and markets; by joint (price) negotiations for specific products; improve transparency on pricing between the collaborating countries.	***Horizon Scanning*** *Work together to find out which innovative – often extremely expensive – medicines are about to become available in the near future.* ***Information sharing and policy exchange:*** *Exchange information on our medicine policies. We believe that sharing information and collaboration between countries, over an extended period of time, will benefit policy initiatives on pricing and reimbursement of medicines.* ***Health Technology Assessment:*** ***C****ooperate in Health Technology Assessments. By using expertise acquired in the European Network on Health Technology Assessment (EUnetHTA), we have a strong base for performing joint assessments.* ***Pricing and Reimbursement:*** *By working closely together, it will be easier to negotiate medicine prices with the industry. Collaboration also allows us to demand more transparency on the cost build-up of pharmaceutical products. Also crucial for the improvement of medicine pricing is increased*

[31] Beneluxa initiative | BeNeLuxA

	it often referred to as 'BeNeLuxAIr'.		*transparency on pricing between countries.*
Celtic Connections strategic alliance[32] (2019)	Health Technology Wales (HTW), Scottish Health Technology Group (SHTG) and the Health Information Quality Authority (HIQA) of Ireland	The alliance aims to share knowledge and explore opportunities to work in collaboration on the appraisal of non-medicine health technologies. Working in partnership, the three organizations plan to make best use of the resources available for HTA and increase the volume of topics for which national advice is published. By working together, the three Celtic Health Technology Assessment (HTA) bodies can better meet that demand and overcome the challenges of each organization having a modest budget and staff to carry out the work.	The noted benefits/outputs include: • Co-production and adaption of evidence reviews • Secondment of senior staff • Enhanced access to clinical and subject experts • Shared training and development opportunities for staff • Reduced duplication and costs realized through collaborative working
EUnetHTA (2010-2023)	The EUnetHTA network consists of 83 organizations from 27 EU member states plus Norway, Switzerland and the Ukraine. The EUnetHTA 21 joint consortium is led by ZIN (The Netherlands) and includes the following HTA agencies: AEMPS (Spain), AIFA (Italy), AIHTA (Austria), GBA	EUnetHTA was established to create an effective and sustainable structure for HTA across Europe that could develop and implement practical tools to provide reliable, timely, transparent and transferable information to contribute to HTAs in Member States. The overall strategic objective of the network is to connect public national/regional HTA agencies, research institutions and health ministries, enabling an effective exchange of information and support to policy decisions by the Member States.	The EUnetHTA network has undertaken three European joint actions. Joint Action 1 (2010-2012) developed a general strategy, principles and an implementation proposal for a sustainable European HTA collaboration. This was continued by Joint Action 2 (2012-2015). Joint Action 3 (2016-2021) increased the use, quality and efficiency of joint HTA work at the European level. EUnetHTA 21 (2021-2023) work builds on the achievements

[32] National bodies to continue building on success of Celtic Connections strategic alliance - Health Technology Wales

	(Germany), HAS (France), INFARMED (Portugal), IQWIG (Germany), KCE (Belgium), NCPE (Ireland), NIPN (Hungary), NOMA (Norway) and TLV (Sweden).	EUnetHTA 21 supports collaboration between European HTA organisations that brings value at the European, national, and regional level through: • The facilitation of efficient HTA resource use. • The creation of a sustainable system of HTA knowledge sharing. • The promotion of good practice in HTA methods and processes.	and lessons learned from the EUnetHTA Joint Actions and focus on supporting a future EU HTA system under the HTA Regulation. Examples of outputs from the EUnetHTA network include: • The HTA Core Model • Methodological guidelines • Planned and Ongoing Projects (POP) Database • Evidence database on new technologies (EVIDENT) • Declaration of Interest and Confidentiality Agreement • Companion Guide (comprehensive repository that aims to provide support and guidance to assessment teams conducting joint assessments) The EUnetHTA 21 consortium ran until 16 September 2023.
FINOSE, 2018.	HTA bodies from four Nordic countries: Finland, Norway, Sweden, and Denmark	The purpose of the FINOSE collaboration is to perform joint HTA, one of several regional activities created to collaborate on joint assessments.	The collaboration allows for sharing of resources and knowledge between HTA agencies, which can lead to more efficient ways of conducting assessments and making reimbursement decisions while maintaining the rigor and quality of the assessments. The focus of FINOSE is primarily on the health economic assessment

HTAsiaLink, 2011(62).	HTAsiaLink is a network of organizational and individual members who are involved in HTA research and evidence-based policy decision-making in Asia and Pacific region. Organizational members include HTA institutions, government HTA units, and other relevant organizations. Individual members include researchers, academics, and professionals in the field of HTA.	HTAsiaLink serves as a platform for knowledge transfer and exchange related to evidence-based priority setting, with the main objective of enhancing the capacity for HTA research and promoting the integration of HTA evidence into policy decisions. The network was formed to address the need for strengthening HTA capacity in Asia and promoting the use of HTA evidence in policy decisions.	The network operates continuously with various collaborative research and annual conferences held to bring together members for networking, sharing of research findings, and collaborative discussions. Outputs include: joint events; information sharing among members and joint research projects. One such example, initiated at the 2019 HTAsiaLink annual meeting was the development of the REAL-World Data In Asia for HTA in Reimbursement (REALISE) working group(63). This working group has developed a REALISE guidance document that serves to align the collection of better quality real world data (RWD) and generation of reliable real-world evidence (RWE) to inform HTA in Asia.
International Network of Agencies for Health Technology Assessment (INAHTA)[33] (1993)	ACE; AETS; AETSA; Agenas; AHRQ; AHTA; AIHTA; ANS; AOTMiT; AP-HP; AQuAS; ASERNIP-S; AVALIA-T; C2H; CADTH; CA-HTA; CDE; CONITEC; DEFACTUM; DHTC;	INAHTA is a network that connects HTA agencies to each other to support knowledge sharing and the exchange of information, and also to serve as a forum for the identification and promotion of other interests of HTA agencies. The membership meets each year for a face-to-face meeting that is held adjacent to the HTAi annual meeting.	The INAHTA website and Members-only section include information about on-going activities, including: -INAHTA Briefs are short 1-page summaries that provide an overview of recently published reports. INAHTA Briefs are published regularly and placed on the INAHTA

[33] The International Network of Agencies for Health Technology Assessment (inahta.org)

	DIGEMID; FinCCHTA; G-BA; GOeG; HAD-Uruguay; HAS; HIQA; HIS; HTW; IACS; IECS; IETS; IETSI; IHE; INEAS; INESSS; IQWiG; KCE; MaHTAS; NECA; NICE; NIHO; NIHR; NIPH; PHARMAC; OH; OSTEBA; RER; SK-NRCHD; SBU; SEC; SFOPH; UVT; ZIN; ZonMw	The aims of INAHTA are to: -bring agency leadership and expertise to bear on the science and practice of HTA in the international health community. -Demonstrate the value of HTA agencies as key components of modern health systems to support robust, evidence-based decision making. -Support best practice and innovation for building and maintaining thriving HTA agencies. -Build communities of practice to enable continuous exchange of knowledge and learning among our members.	website as soon as they become available. -INAHTA Checklists are an aid to furthering a consistent and transparent approach to HTA. They also provide information on the purpose, methods, and contents of an HTA reports -INAHTA Impact Reports re a tool for INAHTA members to report on the impact, or influence, of their HTA on health system decision making. -Joint projects involve the member agencies in collaborative efforts to evaluate medical technologies of mutual interest. INAHTA also produce the HTA Glossary[34] and have Memorandums of Understanding with several other international organizations.
Pan Canadian HTA Collaborative (pCCC)[35], 2011.	Senior executives from the British Columbia Health Technology Assessment Office (BC-HTAO), CADTH, the Institute of Health Economics (IHE), Institut national d'excellence en santé et en services sociaux (INESSS), and Ontario	To share best practices, minimize duplication of effort through the sharing of information, and identify and contribute to joint initiatives in the assessment of health technologies (medical devices, procedures, and diagnostics). Fostering collaboration among regional HTA producers is promoted as a core value and guiding principle of the Collaborative. The Collaborative engages collectively to enhance the development and use of HTA in Canada to improve patient	Publications on the website include the Strategic Goals and Objectives; Group Charter and Criteria for Membership. The website also notes that three priority initiatives are currently underway:

[34] HtaGlossary.net | HomePage
[35] Pan-Canadian Collaborative | CADTH

	Health (OH) direct the pCCC. Involvement from all regional HTA producers is encouraged and it is expected that participation will depend on the availability of appropriate staff and interest in a given initiative. Secretariat support for the Collaborative is provided by CADTH.	outcomes and health system sustainability. To accomplish this, the Collaborative brings together representatives from provincial and pan-Canadian HTA producers.	1. Sharing of Topics Under Consideration and Projects in Progress 2. Harmonized Principles, Processes, and Collaborative Opportunities in the Conducting of HTA 3. Horizon Scanning
RedETSA, 2011	Launched in 2011 with 20 institutions representing 12 countries, the Health Technology Assessment Network of the Americas has grown significantly in the past decade, reaching 39 institutions from 19 countries as of December 2021.	RedETSA aims to strengthen HTA and the exchange of information to support decision-making incorporating, using, and managing health technologies in the Americas.	Congresses have been held to encourage the exchange of experiences related to topics including public policies and strategies related to HTA, synthesis of evidence and methods, decision-making, health economics, HTA in the pandemic, and HTA for medical devices. BRISA, the Regional Database of HTA Reports in the Americas is a centralized platform the reports developed by the member institutions of RedETSA, and gives visibility to information that would otherwise remain dispersed or without public access.

Spanish Network for HTA of the National Health System (RedETS), 2012.	Founded and coordinated by the Spanish Ministry of Health, RedETS includes all public national HTA organizations and from the 17 regions in Spain.	To assist healthcare authorities and policymakers to make decisions regarding the inclusion of non-drug healthcare technologies in public healthcare services and reimbursement policies. The HTAs requested by the Regional Health Authorities are the biggest component of the annual workplan and are prioritized by a Commission composed of representatives from all the Spanish regions.	RedETS produces around 50 to 60 HTA reports each year, including the production of full HTA reports, Clinical Practice Guidelines, methodological guidance reports, relative effectiveness assessments, tools to support shared decision making between patients and healthcare professionals, and monitoring studies. The HTA reports take into account the regional variation in healthcare needs and priorities, allowing for adaptations and regional decision-making when necessary.
Transparency statement, 2023 (ICER-NICE-CADTH)	Three HTA bodies (CADTH in Canada, ICER in the US and NICE in England)[36]	As a basis for the collaboration, in 2022, the International Committee of Medical Journal Editors updated its recommendation on overlapping publications[37] to state that scientific journals may publish scientific data even if they were previously published by regulatory agencies or HTA bodies. This statement provided the impetus for the 3 HTA bodies to collaborate on a joint statement regarding the publication of clinical data in HTA reports. While the HTA bodies operate in different health systems, they share a common goal of maximizing transparency and came together to work on a more consistent approach to handling clinical data.	CADTH and NICE do not routinely redact clinical trial data that are awaiting publication when they publish their respective recommendations, guidance or decisions. ICER however still allows redaction of data that is formally planned for public release within 12 months as academic in confidence (that is information is regarding as confidential typically only for a set period of time). Each HTA body has outlined brief next steps following the publication of the joint statement including engagement with industry to

[36] Position-Statement_confidential-data_FINAL.pdf (icer.org)
[37] ICMJE | Recommendations | Overlapping Publications

			identify how the policy can be implemented in a reasonable way within each jurisdiction so that it will not impede publication or submission timelines.
Surrogate endpoints for cost-effectiveness modelling[38] (2023)	NICE, Scottish Medicines Consortium (SMC), Canadian Agency for Drugs and Technologies in Health (CADTH), HTAi GPF, Australian Department of Health and Aged Care, National Healthcare Institute (ZIN), Colombian Institute for Technology Assessment in Health (IETS).	The aim of the collaboration is to develop more guidance on the use of surrogate outcomes when analyzing cost-effectiveness. The guidance will help pharmaceutical companies understand how surrogate outcomes should be used when analyzing cost-effectiveness of the drugs they are developing.	While there are no outputs as yet due to the nascent nature of the collaboration, however the collaboration is exploring a joint scientific advice procedure that offers advice on the proposed use of new surrogate outcomes in analysing cost-effectiveness.

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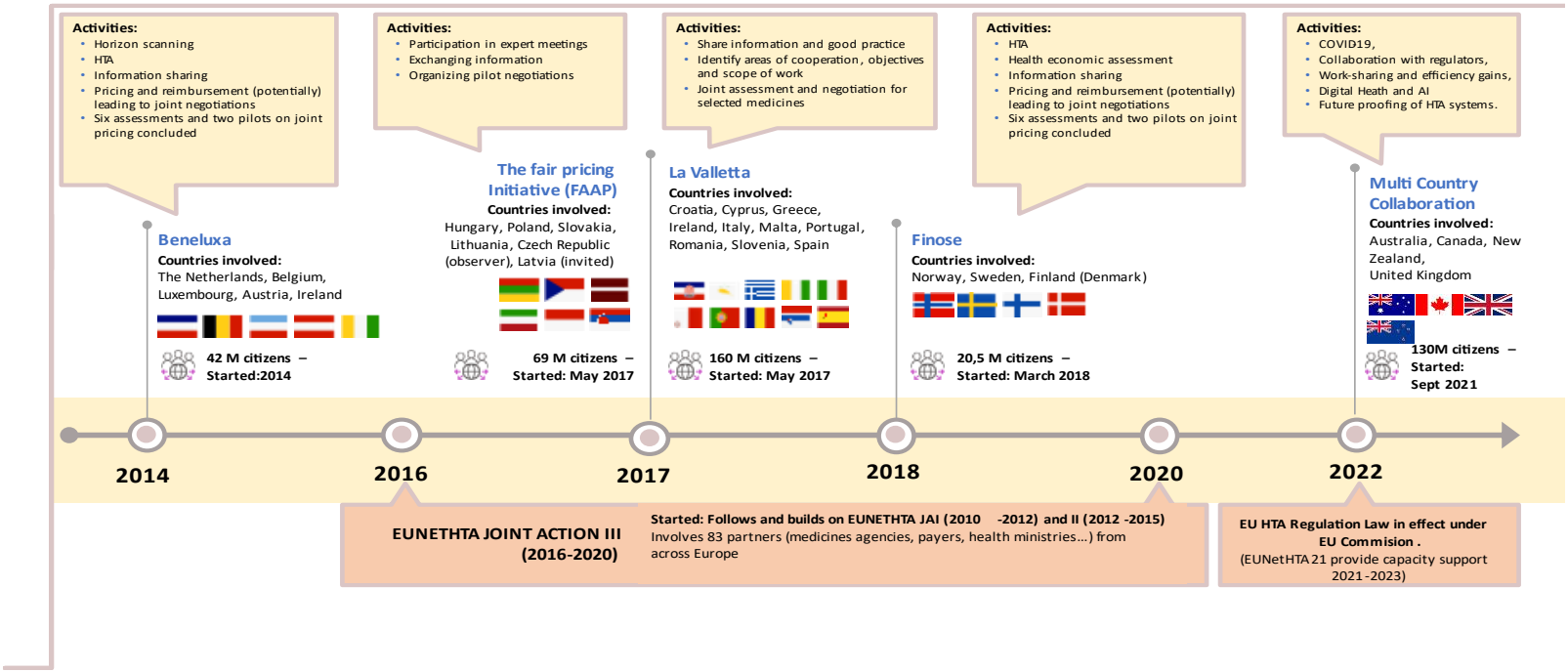
578 Timeline of HTA body collaborations in Europe and beyond (provided by Ramiro Gilardino)

[38] How 'surrogate outcomes' influence long-term health outcomes | Blogs | News | NICE



Examples of HTA bodies collaborating with other stakeholder organizations

Name (alphabetical order), Website
ACCESS Consortium Access Consortium - Strategic Plan 2021-2024 (tga.gov.au)
CADTH patient and community advisory committee Patient and Community Advisory Committee | CADTH
Centre for Innovation in Regulatory Science (CIRS) https://cirsci.org/
Clinical Trials Transformation Initiative (CTTI) Clinical Trials Transformation Initiative - CTTI (ctti-clinicaltrials.org)
CMS – listening sessions [1] https://nationalhealthcouncil.org/
COMET COMET Initiative | Home (comet-initiative.org)
Critical Path Institute (C-PATH) Critical Path Institute (c-path.org)
DIA Drug Information Association: The Global Network for Health Care Product Development Knowledge (diaglobal.org)
EUCAPA EUCAPA - home

European Access Academy EAA - European Access Academy (euaac.org)
EuroSCAN/ International HealthTechScan (I-HTS) EuroScan association – international HealthTechScan (ihts.org)
GINAHTA Working Groups - GIN (g-i-n.net)
GreenPark Collaborative: content archived at Home | Center for Medical Technology Policy Legacy Document Archive (messnerdonna9.wixsite.com)
Heart-valve Collaboratory Home (heartvalvecollaboratory.org)
HTA definition, 2020[39]
HTAi www.htai.org
HTAi Interest Groups
HTAi Policy Forum Meetings Policy Forums - Health Technology Assessment International (HTAi)
ICER patient council ICER's Patient Council - ICER
ICHOM ICHOM - Value Based Healthcare, Improving Patient Outcomes
iDSI iDSI | Better decisions. Better health. (idsihealth.org)
IHI Improving Health and Health Care Worldwide | IHI - Institute for Healthcare Improvement
IHSI Partners - IHSI (ihsi-health.org)
ILAP Innovative Licensing and Access Pathway - GOV.UK (www.gov.uk)
IMI Homepage | IMI Innovative Medicines Initiative (europa.eu)
ISPOR ISPOR - Home
MAGIC Collaboration MAGIC – Trustworthy guidelines, evidence summaries and decision aids that we can all use and share (magicevidence.org)
MEDEV Home (medev-com.eu)
NEWDIGS Center for Biomedical System Design | Biomedical Innovation Think-and-do Tank (tuftsmedicalcenter.org)
NICE Listens NICE Listens | Our projects and partners | Our research work | What we do | About | NICE
NIHR-UK HTA Health Technology Assessment | NIHR
OMERACT OMERACT – OMERACT is a global, volunteer-driven, not for profit organization committed to improving outcomes for patients with autoimmune and musculoskeletal diseases through advancing the design and quality of clinical studies.
Project Hercules Project Hercules (joiningjack.org)
Project ORBIS Project Orbis | FDA
SAPPHIRE Consortium SAPPHIRE (thesapphire.health)
WHO Access to Novel Products Platform WHO/Europe Access to Novel Medicines Platform

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[39] The new definition of health technology assessment: A milestone in international collaboration | International Journal of Technology Assessment in Health Care | Cambridge Core

Appendix B

Implementing the EU HTAR[40]

[40] Implementing the EU Health Technology Assessment Regulation (europa.eu)

European Commission

IMPLEMENTING THE EU HEALTH TECHNOLOGY ASSESSMENT REGULATION

WHAT IS HTA?

HEALTH TECHNOLOGY ASSESSMENT:

Procedure for assessing the added value, effectiveness, costs and broader impact of health care interventions including medicines, medical devices and procedures.

- Is a new medicine more effective in treating a certain disease?
- Do expected costs and benefits present sufficient value-for-money when compared to alternative healthcare interventions?
- How to compare a new medicine to an existing one considering patients, the disease, and the outcome for the patient?
- Will the use of a new medical device result in better diagnosis or treatment?

HTA DOMAINS

CLINICAL DOMAINS

- Health problems and currently used health technologies (e.g. medicines, medical devices, surgical procedures).
- Description of health technology under assessment.
- Relative clinical effectiveness.
- Relative safety.

NON-CLINICAL DOMAINS

- Economic evaluation.
- Ethical aspects.
- Organisational aspects.
- Social aspects.
- Legal aspects.

WHAT'S IN THE EU HTA REGULATION?

FRAMEWORK FOR JOINT HTA COOPERATION

- Joint clinical assessments (JCAs).
- Joint scientific consultations (JSCs).
- Identification of emerging health technologies.
- Common procedures and methodologies across the EU.

KEY PRINCIPLES OF THE HTA REGULATION

- Only on clinical domains of the assessment: No economic assessment or any conclusion on pricing and reimbursement.
- Driven by EU HTA bodies who remain responsible for drawing conclusions on added value for their health systems.
- High quality, timeliness and transparency.
- Use of joint work in national HTA processes.
- Input from independent experts.
- Stakeholder engagement and inclusiveness.
- Progressive implementation.

TIMELINE FOR MEDICINES

- 12 January 2025: New oncology medicines and advanced therapy medicinal products will be assessed at EU level.
- 13 January 2028: Orphan medicinal products to be added to the joint work.
- 13 January 2030: All new medicines will come under the scope of the regulation.

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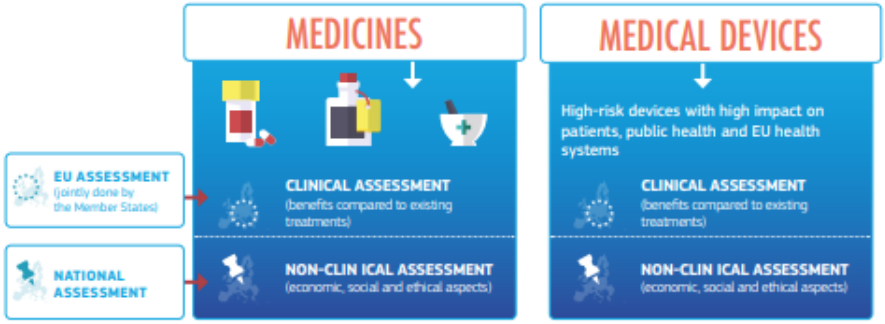
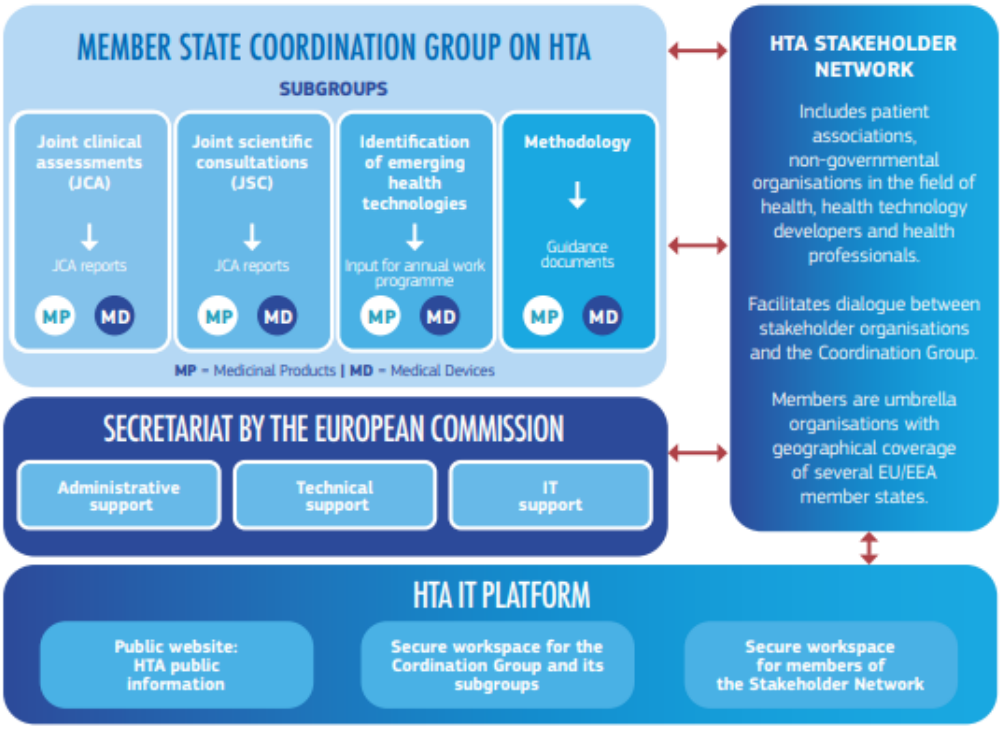
WHAT WILL BE ASSESSED AT EU AND AT NATIONAL LEVEL?



GOVERNANCE STRUCTURE



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TIMELINE

JAN 2022	MAR 2022	NOV 2022	APRIL 2023	JUNE 2023
Entry into force	Coordination Group established	Election of Chair and Co-chairs of the Coordination Group	All sub-groups established	Stakeholder Network established

2023 – 2024	12 JAN 2025
Adoption of implementing acts, and methodological and procedural guidance	Application

EUnetHTA 21

EUnetHTA 21 was set up as a joint consortium of national HTA agencies from 12 EU countries, working under a service contract of the European Commission. Their work, financed by the Third Health Programme, builds on the achievements of over 10 years of cooperation in the EUnetHTA Joint Actions. The work of the consortium focuses on supporting a future EU HTA system under the HTA Regulation.

All deliverables produced by EUnetHTA 21 can be found here: https://www.eunethta.eu/jointhtawork/

#HealthUnion

For more information scan the QR code:

https://health.ec.europa.eu/health-technology-assessment_en

PDF ISBN 978-92-68-03348-7 doi:10.2875/246730 EW-07-23-200-EN-N

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Appendix C - Examples of collaboration in other fields

Regulators

Collaborations in the regulatory space are often compared with collaborations involving HTA bodies; with the question typically being why collaboration seems harder when HTA is involved, given that the same clinical evidence bases are being considered. However, the role and remit of a HTA body is inherently different to that of a regulatory authority; HTA requires consideration of jurisdictional and societal specific values(64). While also challenging, collaboration in the regulatory space has been happening for over 30 years, with a growing agreement on what can and should be shared resulting in a baseline methodology being implemented to harmonize regulatory requirements around this. The WHO has established good review practices and this was a cornerstone of building trust across regulators as the presence of technical guidelines enabled a similar standard of quality in regulatory processes.

The role of the International Coalition of Medicines Regulatory Authorities (ICMRA)[41] has been pivotal as a forum for the heads of regulatory authorities to discuss the main areas of resourcing needs. Particularly during the COVID-19 pandemic, the group provided direction with director-level agreement which then spread to workplans throughout the regulatory authorities (for example, a position paper on how to consider RWE (65)). The group focused on identifying cross-agency challenges that were relevant for all involved. ICMRA and the WHO have recognized regulatory reliance as a mechanism to strengthen regulatory capacity and increase the availability of medicines. Regulatory reliance is defined as "the act whereby a national regulatory authority in one jurisdiction may take into account and give significant weight to assessments performed by another authority or trusted institution, or to any other authoritative information in reaching its own decision. The relying authority remains independent, responsible and accountable regarding the decisions taken, even when it relies on the decisions and information of others". Sovereignty of decision making, transparency of processes and standards, consistency of products and practices, legality of procedures and competency of all stakeholders involved are considered by ICMRA as the foundations to the reliance model.

Reliance can be unilateral or mutual. This means that there are recognized mature regulatory authorities that have been doing full reviews for a number of years and are trusted by other authorities. It was recently announced that from 1 January 2024, that the EC Decision Reliance Procedure will be replaced by the new International Recognition Procedure. The Mutual Recognition/Decentralized Reliance Procedure will be incorporated under the umbrella of IRP[42]. Using the reliance approach, this then allows more nascent agencies to grow capacity and competency by referencing the unilateral reliance model and conducting an abridged review where required. As an example, safety quality standards have been introduced by mature agencies as a reference for other countries (e.g., Australia doing this in the Asia Pacific region which in part will help ensure patients across the whole region are treated with quality medicines which can help to prevent outbreaks of communicable diseases). The reliance model aims to optimize global regulatory processes so that duplication of effort can be reduced, scientific expertise can be leveraged and the capacity of regulators throughout the world is enhanced.

Examples of collaboration that have taken this approach further include Project Orbis and the ACCESS Consortium. Project Orbis was initiated by the FDA Oncology Center of Excellence in 2019 and provided

[41] International Coalition of Medicines Regulatory Authorities (ICMRA) | International Coalition of Medicines Regulatory Authorities (ICMRA)
[42] International Recognition Procedure - GOV.UK (www.gov.uk)

a framework for concurrent submission and review of oncology products among international partners. Project Orbis includes partners from Australia, Brazil, Canada, Israel, Singapore, Switzerland and the UK and aims to promote the optimal design of oncology trials. The ACCESS Consortium includes regulatory agencies from Australia, Canada, Singapore, Switzerland and the UK to promote greater regulatory collaboration and alignment of regulatory requirements. The ACCESS Consortium is exploring opportunities for information and work-sharing in areas including:

- the registration of medicines containing new active substances (including COVID-19 vaccines and therapeutics);
- the registration of generic and biosimilar medicines;
- post-market medicine safety information;
- development of technical guidelines for industry;
- alignment of IT systems and architecture.

Other examples of collaboration in the regulatory field includes the International Medical Device Regulator Forum (IMDRF). The IMDRF was established in 2011 as a voluntary group of global medical device regulators that aim to "accelerate international medical device regulatory harmonization and convergence". A variety of technical and procedural documents have been produced[43].

Linked to this type of collaboration is that of medical technology companies themselves collaborating. As one example, in 2018, Janssen Pharmaceutical Companies of Johnson & Johnson announced that it had formed an industry-led alliance in acute myeloid leukemia clinical treatments (Measurable residual disease Partnership and Alliance in Acute myeloid leukemia Clinical Treatment, MPAACT)[44]. Other companies included Genentech (a member of the Roche Group), Novartis and Celgene Corporation (a subsidiary of BMS) and recently expanded with Amgen and AbbVie and Kronos Bio. The aim of the collaboration is to advance efforts to establish measurable residual disease as a surrogate endpoint for overall survival in the treatment of acute myeloid leukemia(66).

Collaboration in Climate Science

The history of collaboration in climate science has been marked by a growing recognition of the need for interdisciplinary and international cooperation to understand the complex nature of climate systems and address the challenges posed by climate change (67). The foundation of climate science can be tracked back to the early 19th century when scientists began measuring basic climate parameters and the earliest collaborations were primarily between meteorologists and physicists. The International Meteorological Cooperation was established in 1873 and laid the groundwork for international collaboration in weather and climate observation. Climate research institutions began emerging in the 20th century and began to collaborate on climate research and the advent of climate modelling in the mid-20th century necessitated interdisciplinary collaboration between meteorologists, oceanographers and other scientists. The first global climate assessments were published in the late 1970s and the Intergovernmental Panel on Climate Change and the World Climate Research Program were established in the late 1980s; these are examples of successful collaborations which provide policy makers with comprehensive and reliable information (68). Increasingly, collaborations in climate science involve a

[43] Documents | International Medical Device Regulators Forum (imdrf.org)

[44] MPAACT Consortium Unites Industry and Academia to Establish Measurable Residual Disease as a Surrogate Endpoint in Acute Myeloid Leukemia Drug Development | Johnson & Johnson (jnj.com)

range of experts to explore the multifaceted impacts of climate change and to develop comprehensive solutions. In the early 21st century, climate science collaborations began to include the public through "citizen science" initiatives to raise awareness and promote climate action and engage non-scientists in data collection and analysis (69). These methods continue to evolve. In 2015, the Paris Agreement presented a significant international collaborative effort to address climate change and brought together nearly all nations to agree to limit global warming, mitigate its effects and enhance cooperation on climate science (70). Stakeholders are increasingly working together to understand climate impacts, develop strategies and promote sustainable solutions. Private sector engagement has also led to innovative solutions for mitigating climate change (for example between renewable energy companies, research institutes and governments) (71). Successful collaboration in climate science has involved transparency, inclusivity, data sharing and a focus on the common goal of addressing climate change (72).

Challenges to collaboration in climate science include political interference. Political and economic interests or pressures distort scientific findings or delay actions to address climate change, and this can undermine the credibility of climate science research and recommendations (73). A failure to involve key stakeholders, such as marginalized communities or LMIC in climate science collaboration can result in inadequate solutions that do not address the needs of those most affected. Some organizations or individuals may withhold climate data or research findings, preventing open collaboration and transparency and this can limit collaborations. Collaborations in climate science have also been compromised when conflicting interests arise among participants, such as industry representatives seeking to undermine or change climate action for commercial reasons. Poor communication between scientists, policymakers and the public has also led to misunderstandings and has hindered effective action on climate change (74).

References

1. Erdös J, Ettinger S, Mayer-Ferbas J, de Villiers C, Wild C. European collaboration in health technology assessment (HTA): goals, methods and outcomes with specific focus on medical devices. Wiener Medizinische Wochenschrift (1946). 2019;169(11):284.
2. Politi MC, Street RL. The importance of communication in collaborative decision making: facilitating shared mind and the management of uncertainty. Journal of evaluation in clinical practice. 2011;17(4):579-84.
3. Leckenby E, Dawoud D, Bouvy J, Jónsson P. The Sandbox Approach and its Potential for Use in Health Technology Assessment: A Literature Review. Applied Health Economics and Health Policy. 2021;19(6):857-69.
4. Cavazza M, Jommi C. Stakeholders involvement by HTA Organisations: Why is so different? Health policy. 2012;105(2-3):236-45.
5. Grigorovich A, Fang ML, Sixsmith J, Kontos P. Defining and evaluating transdisciplinary research: implications for aging and technology. Disabil Rehabil Assist Technol. 2019;14(6):533-42.
6. O'Rourke B, Oortwijn W, Schuller T. The new definition of health technology assessment: A milestone in international collaboration. Int J Technol Assess Health Care. 2020;36(3):187-90.
7. Neumann PJ, Crummer E, Chambers JD, Tunis SR. Improving Food and Drug Administration-Centers for Medicare and Medicaid Services Coordination for Drugs Granted Accelerated Approval. Milbank Q. 2023.
8. The L. Global collaboration for health: rhetoric versus reality. Lancet. 2020;396(10253):735.
9. Wood DJ, Gray B. Toward a comprehensive theory of collaboration. The Journal of applied behavioral science. 1991;27(2):139-62.
10. Kaats E, Opheij W. Collaboration: A Fundamental Capability in Society and Organizations. Creating Conditions for Promising Collaboration: Alliances, Networks, Chains, Strategic Partnerships. Berlin, Heidelberg: Springer Berlin Heidelberg; 2014. p. 7-35.
11. Fuks H, Raposo A, Gerosa MA, Pimental M, Lucena C. The 3C collaboration model. 2007. p. 637-44.
12. Castañer XC, Oliveira N. Collaboration, Coordination, and Cooperation Among Organizations: Establishing the Distinctive Meanings of These Terms Through a Systematic Literature Review. Journal of Management. 2020;46:1001 - 965.
13. Bump JB, Friberg P, Harper DR. International collaboration and covid-19: what are we doing and where are we going? BMJ. 2021;372:n180.
14. Jones BF, Wuchty S, Uzzi B. Multi-university research teams: Shifting impact, geography, and stratification in science. science. 2008;322(5905):1259-62.
15. Schünemann HJ, Reinap M, Piggott T, Laidmäe E, Köhler K, Põld M, et al. The ecosystem of health decision making: from fragmentation to synergy. Lancet Public Health. 2022;7(4):e378-e90.
16. Von Krogh G, Ichijo K, Nonaka I. Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation: Oxford university press; 2000.
17. Garrett Z, Imaz-Iglesia I, Willemsen A. Building a model of health technology assessment cooperation: lessons learned from EUnetHTA joint action 3. International Journal of Technology Assessment in Health Care. 2022;38(1):e14.
18. Trowman R, Ollendorf DA. HTA 2025 and Beyond: Lifecycle Approaches to Promote Engagement and Efficiency in Health Technology Assessment2022 August 2022.
19. Nosek B. Strategy for culture change. Center for Open Science. 2019;11.
20. Ansell C, Gash A. Collaborative Governance in Theory and Practice. Journal of Public Administration Research and Theory. 2007;18(4):543-71.

21. McNamara MW. Unraveling the characteristics of mandated collaboration. Advancing collaboration theory: Models, typologies, and evidence. 2016:65-86.
22. O'Flynn J. The cult of collaboration in public policy. Australian Journal of Public Administration. 2009;68(1):112-6.
23. Keast R, Mandell M. The collaborative push: Moving beyond rhetoric and gaining evidence. Journal of management & governance. 2014;18:9-28.
24. Vella Bonanno P, Bucsics A, Simoens S, Martin AP, Oortwijn W, Gulbinovič J, et al. Proposal for a regulation on health technology assessment in Europe – opinions of policy makers, payers and academics from the field of HTA. Expert Review of Pharmacoeconomics & Outcomes Research. 2019;19(3):251-61.
25. Kanavos P, Angelis A, Drummond M. An EU-wide approach to HTA: An irrelevant development or an opportunity not to be missed? : Springer; 2019. p. 329-32.
26. Guegan EW, Cook A. Success factors for international HTA projects: evaluating EUnetHTA Joint Action as an exemplar. International Journal of Technology Assessment in Health Care. 2014;30(5):544-51.
27. Werkö L, Banta D. Report from the EUR-ASSESS Project. International Journal of Technology Assessment in Health Care. 1995;11(4):797-9.
28. Jonsson E, Banta HD, Henshall C, Sampietro-Colom L. Summary report of the ECHTA/ECAHI project. International Journal of Technology Assessment in Health Care. 2002;18(2):218-37.
29. Lampe K, Mäkelä M, Garrido MV, Anttila H, Autti-Rämö I, Hicks NJ, et al. The HTA core model: a novel method for producing and reporting health technology assessments. International journal of technology assessment in health care. 2009;25(S2):9-20.
30. Galbraith M, Guilhaume C, Bélorgey C. Early Dialogues for Pharmaceutical Products in European Network for Health Technology Assessment Joint Action 3: What Was Done and Where to Go in the Future. International Journal of Technology Assessment in Health Care. 2022;38(1):e30.
31. Imaz-Iglesia I, Wild C. EUnetHTA's contribution to the new legal framework for health technology assessment cooperation in Europe. International Journal of Technology Assessment in Health Care. 2022;38(1).
32. Kristensen FB, Mäkelä M, Neikter SA, Rehnqvist N, Håheim LL, Mørland B, et al. European network for Health Technology Assessment, EUnetHTA: Planning, development, and implementation of a sustainable European network for Health Technology Assessment. International journal of technology assessment in health care. 2009;25(S2):107-16.
33. Ruether A, Imaz-Iglesia I, Bélorgey C, Scalzo AL, Garrett Z, Guardian M. European collaboration on health technology assessment: looking backward and forward. International Journal of Technology Assessment in Health Care. 2022;38(1):e34.
34. Drummond M, Tarricone R, Torbica A. European union regulation of health technology assessment: what is required for it to succeed? The European Journal of Health Economics. 2022;23(6):913-5.
35. Hailey D, Menon D. A short history of INAHTA. International journal of technology assessment in health care. 1999;15(1):236-42.
36. Banta D, Jonsson E. History of HTA: introduction. International journal of technology assessment in health care. 2009;25(S1):1-6.
37. Vangen S. Culturally diverse collaborations: a focus on communication and shared understanding. Public Management Review. 2017;19(3):305-25.
38. Crossley E, Chandler F, Godfrey J, Fischer R, Furlong P, Abrams K, et al. PB4 PROJECT HERCULES: A PATIENT LED PARADIGM IN EVIDENCE GENERATION FOR HTA IN DUCHENNE MUSCULAR DYSTROPHY. Value in Health. 2020;23:S13.

39. Powell PA, Carlton J, Rowen D, Brazier J, Facey K, Bayley K, et al. Measuring What Matters: Little Evidence Supporting the Content Validity of EQ-5D in People with Duchenne Muscular Dystrophy and Their Caregivers. Medical Decision Making. 2022;42(2):139-40.
40. Clearfield E, Miller V, Nadglowski J, Barradas K, Al Naber J, Sanyal AJ, et al. coreNASH: Multi-stakeholder Consensus on Core Outcomes for Decision Making About Nonalcoholic Steatohepatitis Treatment. Hepatology communications. 2021;5(5):774-85.
41. Messner DA. Evaluating the comparative effectiveness of treatment sequences in oncology: a new approach. Future Medicine; 2015. p. 537-40.
42. Park SH, Han K. Methodologic Guide for Evaluating Clinical Performance and Effect of Artificial Intelligence Technology for Medical Diagnosis and Prediction. Radiology. 2018;286(3):800-9.
43. Messner DA, Koay P, Naber JA, Cook-Deegan R, Majumder M, Javitt G, et al. Barriers to clinical adoption of next-generation sequencing: a policy Delphi panel's solutions. Personalized medicine. 2017;14(4):339-54.
44. Smith MY, Janssens R, Jimenez-Moreno AC, Cleemput I, Muller M, Oliveri S, et al. Patients as research partners in preference studies: learnings from IMI-PREFER. Research Involvement and Engagement. 2023;9(1):1-14.
45. Gunn C, Fruytier S, Finlay T, Vat L, Zuiderent-Jerak T, Schuitmaker T. Co-design and its consequences: developing a shared patient engagement framework in the IMI-PARADIGM project. Science and Public Policy. 2023.
46. Makady A, van Acker S, Nijmeijer H, de Boer A, Hillege H, Klungel O, et al. Conditional Financing of Drugs in the Netherlands: Past, Present, and Future-Results From Stakeholder Interviews. Value Health. 2019;22(4):399-407.
47. Rule CH. Chatham House Rule [Available from: https://www.chathamhouse.org/about-us/chatham-house-rule.
48. Jarratt D, Ceric A. The complexity of trust in business collaborations. Australasian Marketing Journal (AMJ). 2015;23(1):2-12.
49. Wale JL, Thomas S, Hamerlijnck D, Hollander R. Patients and public are important stakeholders in health technology assessment but the level of involvement is low–a call to action. Research involvement and engagement. 2021;7(1):1-11.
50. Slattery P, Saeri AK, Bragge P. Research co-design in health: a rapid overview of reviews. Health Research Policy and Systems. 2020;18(1):17.
51. Silva AS, Facey K, Bryan S, Galato D. A framework for action to improve patient and public involvement in health technology assessment. Int J Technol Assess Health Care. 2021;38(1):e8.
52. Single ANV, Facey KM, Livingstone H, Silva AS. Stories of Patient Involvement Impact in Health Technology Assessments: A Discussion Paper. Int J Technol Assess Health Care. 2019;35(4):266-72.
53. Wang T, McAuslane N, Goettsch WG, Leufkens HG, De Bruin ML. Challenges and opportunities for companies to build HTA/Payer perspectives into drug development through the use of a dynamic target product profile. Frontiers in Pharmacology. 2022;13:948161.
54. Hofmann B. Priority setting in health care: trends and models from Scandinavian experiences. Med Health Care Philos. 2013;16(3):349-56.
55. Oortwijn W, Klein P. Addressing Health System Values in Health Technology Assessment: The Use of Evidence-Informed Deliberative Processes. Int J Technol Assess Health Care. 2019;35(2):82-4.
56. Broqvist M, Sandman L, Garpenby P, Krevers B. The meaning of severity - do citizeńs views correspond to a severity framework based on ethical principles for priority setting? Health Policy. 2018;122(6):630-7.
57. Oortwijn W, Jansen M, Baltussen R. Evidence-Informed Deliberative Processes for Health Benefit Package Design - Part II: A Practical Guide. Int J Health Policy Manag. 2022;11(10):2327-36.

58. Bryson JM, Crosby BC, Stone MM. Designing and implementing cross-sector collaborations: Needed and challenging. Public administration review. 2015;75(5):647-63.
59. Marek LI, Brock D-JP, Savla J. Evaluating collaboration for effectiveness: Conceptualization and measurement. American Journal of Evaluation. 2015;36(1):67-85.
60. Luhnen M, Ormstad SS, Willemsen A, Schreuder-Morel C, Helmink C, Ettinger S, et al. Developing a quality management system for the European Network for Health Technology Assessment (EUnetHTA): toward European HTA collaboration. International Journal of Technology Assessment in Health Care. 2021;37(1):e59.
61. Ng E, Stanton P. The great resignation: managing people in a post COVID-19 pandemic world. Personnel Review. 2023;52(2):401-7.
62. Teerawattananon Y, Luz K, Yothasmutra C, Pwu RF, Ahn J, Shafie AA, et al. HISTORICAL DEVELOPMENT OF THE HTAsiaLINK NETWORK AND ITS KEY DETERMINANTS OF SUCCESS. Int J Technol Assess Health Care. 2018;34(3):260-6.
63. Kc S, Lin LW, Bayani DBS, Zemlyanska Y, Adler A, Ahn J, et al. What, Where, and How to Collect Real-World Data and Generate Real-World Evidence to Support Drug Reimbursement Decision-Making in Asia: A reflection Into the Past and A Way Forward. Int J Health Policy Manag. 2023;12:6858.
64. Tafuri G, Pagnini M, Moseley J, Massari M, Petavy F, Behring A, et al. How aligned are the perspectives of EU regulators and HTA bodies? A comparative analysis of regulatory-HTA parallel scientific advice. British journal of clinical pharmacology. 2016;82(4):965-73.
65. Burns L, Le Roux N, Kalesnik-Orszulak R, Christian J, Hukkelhoven M, Rockhold F, et al. Real-world evidence for regulatory decision-making: guidance from around the world. Clinical Therapeutics. 2022;44(3):420-37.
66. Blachly JS, Walter RB, Hourigan CS. The present and future of measurable residual disease testing in acute myeloid leukemia. Haematologica. 2022;107(12):2810.
67. Welsh I. Climate change: complexity and collaboration between the sciences. Routledge handbook of climate change and society Londres. 2010:34-56.
68. Bierly EW. The world climate program: collaboration and communication on a global scale. The ANNALS of the American Academy of Political and Social Science. 1988;495(1):106-16.
69. Kythreotis AP, Mantyka-Pringle C, Mercer TG, Whitmarsh LE, Corner A, Paavola J, et al. Citizen social science for more integrative and effective climate action: A science-policy perspective. Frontiers in Environmental Science. 2019;7:10.
70. Boucher O, Bellassen V, Benveniste H, Ciais P, Criqui P, Guivarch C, et al. In the wake of Paris Agreement, scientists must embrace new directions for climate change research. Proceedings of the National Academy of Sciences. 2016;113(27):7287-90.
71. Lee WJ, Juskenaite I, Mwebaza R. Public–private partnerships for climate technology transfer and innovation: lessons from the climate technology centre and network. Sustainability. 2021;13(6):3185.
72. Biagini B, Miller A. Engaging the private sector in adaptation to climate change in developing countries: importance, status, and challenges. Climate and Development. 2013;5(3):242-52.
73. Cundill G, Harvey B, Tebboth M, Cochrane L, Currie-Alder B, Vincent K, et al. Large-scale transdisciplinary collaboration for adaptation research: Challenges and insights. Global Challenges. 2019;3(4):1700132.
74. Meadow AM, Ferguson DB, Guido Z, Horangic A, Owen G, Wall T. Moving toward the deliberate coproduction of climate science knowledge. Weather, Climate, and Society. 2015;7(2):179-91.