Brussels, 26 April 2018
COST 057/18

CSO DECISION

Subject: **COST Impact Model**

Following the 203rd CSO meeting in Reykjavik on 25-26 April 2018, the CSO approved the COST Impact Model.

The COST philosophy on impact

A) PHILOSOPHY

COST focuses on networking in science and technology. For COST, networking plays an important but also specific role in the bigger European R&I landscape. Research always starts with excellence: society demands – rightly – that publicly funded research should be as excellent as possible. Yet, as network theory has widely proven, if excellence remains encapsulated within small groups, it might not exert its full effect. Excellence is sometimes at its best when it is proliferated, that is why we talk of *spreading excellence*. COST Actions enable this by starting with a small bottom-up network of excellence, for which *any* good idea in science and technology can serve, and allowing other researchers and professionals to adhere to this network once it is established. Thus, researchers do not have to be already part of a network in order to participate and profit from the knowhow and expertise in the Action network. This enables researchers, for example younger researcher or researchers from less research-intensive countries, who strive for excellence to connect to poles of excellent research and to be immerged in the state of the art in their field. Through this dynamic COST spreads excellence, while remaining loyal to principles of proposal selection on basis of excellence and bottom-up creation.
COST follows a framework developed by Lamy Group member Mark Ferguson in its practical approach to impact. This framework involves five components: inputs, activities, outputs, outcomes and impacts. The COST philosophy is that these five components are logically linked: in selecting its inputs and designing its activities, the COST Association already has outcomes and impacts in mind. The impact model has a direct connection to the **COST Strategic Plan.**

B) COMPONENTS

Inputs: people, ideas, resources[1]
COST provides the resources to bring people together around one idea. A crucial point of the COST framework is that people and ideas are not necessarily linked. An initial group of researchers comes up with one excellent bottom-up idea. After approval to start a COST Action on this idea, the COST National Coordinators from the 37 COST Member States find the best researchers to come together in an Actionto work upon this idea. This unique open framework already eyes two particular lines on which COST aims to have impact. Through putting people together who do not necessarily already know each other or who have distinct backgrounds, the COST framework provokes **network effects.** Similarly, by giving younger researchers and researchers from less research-intensive countries the opportunity to enter into networks, the COST framework contributes to **capacity building** in research and innovation.

[1] Resources is defined as meaning resources of financial nature.

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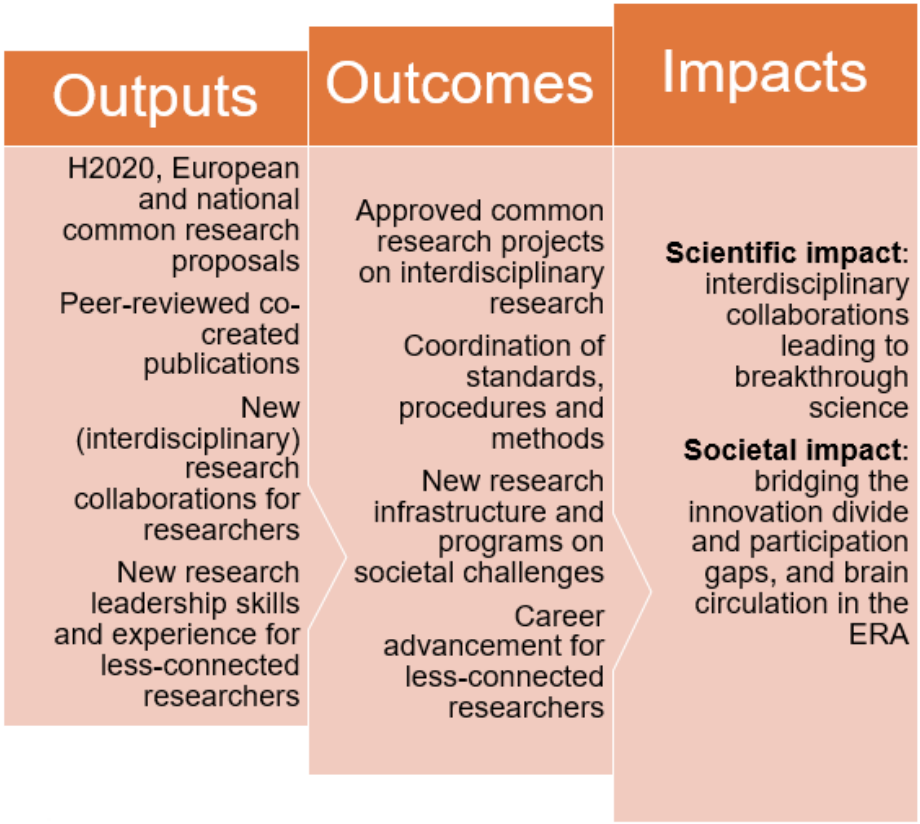

Activities: networking

The core of COST Actions is networking. To every COST Action, several networking tools are available. These include meetings, training schools, short-term scientific missions (STSMs), dissemination tools and conference grants. Moreover, the COST Association hosts frequently events, which aim to bring COST Actions in contact with each other as well as with relevant stakeholders from policy-making, industry and society (the COST Connect events). All of these tools and events serve two main purposes: to kindle (new forms of) collaboration and coordination (network effects), and to give researchers additional skills in research and research management (capacity building).

Outputs & outcomes: network effects

Innovation is often understood as a feet of engineering and production. You build something and it hits the market, adding value for economy and society. However, innovation starts with *ideas* (as clearly explained in the Harvard Innovation Value Chain). The first step, and probably the most crucial step, is **idea generation**. We might well like the idea of Archimedes' "eureka!" moment, but in practice, we most often get new ideas by being inspired by somebody else's ideas or work, emulating these to our own good. In many cases, this emulation happens across disciplines, and COST Actions have shown themselves to have a particular tendency towards interdisciplinarity. A more established idea might have matured completely, but can still lack a practical application; in this case, **conversion of ideas in practical applications** is the

logical next step. On the other hand, it might be that many people are working on a prominent idea at the same time, but a lack of common procedures, common methods and/or common standards impedes collaboration or co-creation. In this case, **coordination and standardisation** between practices and standards might be the logical next step.

In all three cases, COST Actions are an ideal platform to advance. COST Actions start with an idea, but this idea does not have to be fully mature. The o**penness of COST Actions allow different parties with different perspectives** on the idea to join, forming a "market place of ideas" where ideas are allowed to intermingle and where researchers can choose those ideas which them best. Equally, **COST Actions are open to all kinds of participants**, including participants from application-oriented research organisations, industrial partners and societal stakeholders.

On the level of concrete output indicators, the COST Association in particular targets the common drafting of proposals for intensified research cooperation between Action participants, for example for H2020, other European schemes or for various national grants. It also targets novel, interdisciplinary publications co-authored by different Action participants, as a first step in intensified collaboration between COST participants.

On the level of mid-term outcomes, the COST Association looks towards Action participants concretely working together in multi-year research projects, which can potentially lead to breakthrough science and technology. Moreover, the COST Association sees COST Actions as a fertile breeding ground for the coordination and ultimate adoption of common standards, procedures and methods, in science as well as in scientific and technological applications, in the form of products and services.

Outputs & outcomes: capacity building

The second large effect of networking involves capacity building. Many existing European funding schemes in Research & Innovation, including Horizon 2020, tend to generate a so-called "Matthew effect": most of the funding goes to well-established researchers in major, prominent institutions in West-European countries. Yet, excellence might well only exert its biggest effect if it does not stay between these "usual suspects", but is rather shared with "unusual suspects". Some ideas only have the **biggest impact in a context which is economically, socially and geographically different** from the place where it originates. This requires the effective representation of researchers from all different places in Europe, including places which are often left out of big European research efforts. In a same vein, ideas might have a bigger effect when they are taken up and reinterpreted by researchers from different generations, with different perspectives on the world and the challenges they face, and with different backgrounds and skill sets.

The COST Framework is tailor-designed to make sure that everybody does not only get a fair share in participation, but also get a chance to develop their skills and get a more prominent position in the network. Actions are stimulated to involve younger researchers and put these researchers into positions of responsibility, allowing them to accrue useful leadership skills. Moreover, the COST Association assures, through several baseline requirements and enabling efforts, that researchers from less research-intensive countries effectively participate in COST Actions, including in leadership positions. For example, the **COST Conference Grant is exclusively designed to allow young researchers from less research-intensive countries** to visit leading conferences in their field, thereby establishing their position in the research landscape.

On the level of concrete output indicators, the COST Association in particular targets the development of new research collaborations involving younger and less-connected researchers, which can aid in career development for these researchers. Moreover, the COST Association aims to develop the leadership skills and extend the network of younger and less-connected researchers.

On the level of mid-term outcomes, the COST Association looks towards the development of new research infrastructure (or the enhancement of existing infrastructure), which is intended to help tackle societal challenges. Moreover, on the mid-term, the COST Association aims to have participation in COST Action networks to contribute substantively to the career of young and less-connected researchers.

Long-term impact

The long-term impact of COST Actions can be somewhat diffuse, since bottom-up networks have divergent objectives. There is nothing wrong with this; in fact, COST celebrates this diversity in its Actions and their objectives. Nevertheless, the COST Association aims to have, in general, two main types of impact.

The first type of impact is mostly scientific: **interdisciplinary collaborations leading to breakthrough science.** In some cases, this might be a **big breakthrough** attained somewhere along the way. In other cases, this might be a **concrete product or application** developed out of an idea. In other cases, this might be **consolidation of the field**, with different players coming to common understandings and collaborations. This can manifest itself in, for example, new research groups, projects, journals or conferences in the field. Finally, in some cases, it might be that the parties involved discover that the **idea is not worth pursuing anymore**. In fact, the realisation that an idea should be binned and we should start with something new can be an important, although neglected, impact.

The second type of impact is more societal: **to bridge the innovation divide and participation gaps in the European Research Area (ERA)**. It is well-known that the ERA does currently not always provide a completely level playing field. Younger researchers and researchers from less research-intensive countries and regions can have more difficulties in attaching themselves to networks of excellence and to fully develop their potentials. Through the bottom-up, inclusive instrument of COST Actions, the COST association aims to overcome these imbalances in order to come to a flourishing and well-functioning ERA.

C) MEASUREMENT

Measurement of impact is never self-evident, but particularly so in projects where many people are involved and where the results of this involvement is supposed to revolve around people reaching targets together. COST employs a strategy which balances the naturally spontaneous nature of COST Actions with a focus on finding structured outcomes, results and, where possible, impacts. COST uses, in this respect, a ‘measurement chain’ logic; in the lower parts of the chain are reliable ways of measurement, like monitoring and Action reports, which focus mostly on the activities and direct outputs of Actions. In the middle parts of the chain are measurement instruments like follow-up surveys, retrospective reporting and network analyses, which might not capture the full richness of COST outcomes, but can still provide structured data on these. In the higher part of the chain, we find storytelling and pathway analysis, which provide relatively unstructured but potentially very rich information about the long-term effects of networking in COST Actions. The underlying philosophy is that a solid performance of lower parts of the chain will reinforce higher parts of the chain.

Annex I: Visual representation of COST impact philosophy