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**The EuroScience Open Forum:
an open arena reflecting multiple dimensions
of contemporary science communication**

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*To my parents: for always being supportive,
even in my craziest decisions.*

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Introduction

The role of science communication in defining modern knowledge societies

In 1984 the French philosopher Jean-François Lyotard argued that «knowledge had become, over the past few decades, the primary force of production in the upcoming postmodern society¹». A science-based society, where *science* translates into the Aristotelian tradition notion of *scientia* (perfect knowing), takes over the industrial one, originated two centuries before. Today, scientific knowledge is widely considered as the core of economic growth, driver for innovation and a possible answer to humanity's greatest challenges such as shortage of resources and climate change. Because of such expectations, science communication comes to play a crucial role on, at least, three fronts: welfare, democracy and cultural identity². Knowledge must be communicated to citizens, policy makers, entrepreneurs, so they can take advantage from it, enhance and strengthen our understanding of the world, develop new products and improve life quality. Beside welfare, democracy also benefits from science communication, as the decision-making is a practice more and more participative in our societies, engaging a variety of different publics. To let the general public in science-related debates as a key interlocutor, along with the understanding of scientific concepts, people must become familiar with how science works, be aware of its methodologies, practices, limitations and failings. Finally, science communication can directly mold the cultural fabric we live in by shaping our thinking about social issues, providing meaning and sense to the world, valuing knowledge as a public good and defining a shared social identity. This is especially true in Europe, where a deep-rooted political union as first envisaged by the Maastricht treaty in 1992 has still to come.

But what do we exactly refer to when we talk about science communication? Over time, it has turned into something much more complex than a mere transmission, illustration or simplification of technical information by those *who know* to those *who*

¹ J.-F. Lyotard, *The Postmodern Condition*. Manchester, Manchester University Press, 1984

² S.R. Davies and M. Horst, *Science communication: Culture, identity and citizenship*, Palgrave Macmillan UK, 2006

do not. Nowadays, science communication does not simply try to provide answers. It rather creates new environments where people with different expertises can face each other, debate, raise new questions and co-produce new solutions. This happens in a variety of contexts: science museums, festivals, events, workshops, conferences, public lectures and debates, journalistic publications, social media. In order to transfer knowledge, information must be «processed, integrated, understood³» and, for this, science communication provides interpretative categories, instruments and schemes for thought and for interpreting reality which are tailored to suit specific audiences: scientists, academics, general public, students, policy makers, communicators, entrepreneurs. It is a fully-fledged and multifaceted cultural phenomenon, a meaning and identity maker symbiotically tied to society. In fact, this perfectly reflects the idea of *culture* given by the British sociologist Stuart Hall, according to whom «culture is concerned with the production and the exchange of meanings between the members of a society or group⁴», to provide sense to the complexity of our contemporary world.

Talking about science communication, Professor Sarah R. Davies from the University of Copenhagen affirmed that:

*one metaphor to capture complexity of science communication within contemporary knowledge societies is that of an ecosystem, a space teeming with different life forms all relating to each other in different ways. It has many niches in which different practices of communication sustain themselves and others in a complex web of interdependence and autonomy. (...) it is not something that should be imagined as a primarily personal or individual process, but as involving collectives and constituting cultures.*⁵

³ C. Castelfranchi, *Six critical remarks on science and the construction of the knowledge society*, in «Journal of science communication» Vol. 6, 2007

⁴ S. Hall, *Representation: Cultural Representations and Signifying Practices*, London, SAGE Publications, 1997

⁵ S.R. Davies and M. Horst, *Science communication: Culture, identity and citizenship*, Palgrave Macmillan UK, 2006

Research goals

This thesis wants to explore the evolution of the ecosystem of science communication over the past twenty years in the European context. A special focus is given to the relationship between science communication, culture and identity in modern knowledge societies, in which “knowledge and its mastery by as much people as possible is the ideal”⁶. I will try to get a sense of the multiplicity of this field, depicting it in the most comprehensive possible way within the frame of the EuroScience Open Forum (ESOF). This biennial pan-European meeting is composed of a variety of practices and formats that combine different kinds of knowledge and that address various audiences. I claim ESOF is a perfect model to study contemporary science communication, its impact on society and the major players involved. To demonstrate this, I will analyse the evolution of this format, together with its publics, contents and adopted language, from the first edition in 2004 to date.

As science, together with the ideals it embodies (e.g. integration, collaboration, dialogue), is considered by many one of the strongest potential identity factors for a new generation of European citizens, in this work I also state that ESOF plays an important role in the definition of a new *scientific Europe*, a more cohesive social and cultural entity having science as its binding element and focusing its economic power on knowledge and innovation.

Outline

The present manuscript is divided into five chapters. Chapter 1 explores the emergence of a modern knowledge-based society in Europe over the past thirty years, thus providing an historical and cultural background. The European official policies adopted to spread and promote a stronger scientific culture, as well as shifts in the public perception of science, and new forms of interaction between science and society will also be discussed. Within this new type of knowledge-based society,

⁶ D. Pestre, *Science, society and politics knowledge societies from an historical perspective*, Report to the Science, Economy and Society Directorate European Commission, European Communities, January 2007

I will describe the rise of EuroScience, a pan-European grassroots organization with a specific vision to shape a scientific Europe from the bottom-up, to undertake to advance science and innovation and to be an umbrella for organisations in the field of science. Among the several activities EuroScience organizes, I will focus on its biennial Open Forum (ESOF): it is a great model to examine the evolving relationship between science, culture and society in Europe, but also to investigate actors and frames of contemporary science communication.

In chapter 2, I provide a detailed description of the research methods adopted for this study, namely documentary research and individual interviews.

The last two chapters are entirely dedicated to ESOF. Its history, from its establishment to date, is depicted in chapter 3. The analysis includes a detailed discussion about the addressed publics, the adopted communication strategy, the main topics covered, the formats introduced at each edition, and the legacy of past events. Chapter 4 is more focused on Trieste, recently nominated European City of Science to host the next ESOF edition in 2020, with the primary aim to become a reference point for new scientific and cultural connections between Western and Eastern Europe. After a brief description of the contemporary scientific environment in CEE countries, I will talk about how EuroScience has been trying to get more of these countries involved with ESOF over the years. I will discuss the most relevant details of the candidature of Trieste to host ESOF and the expected legacy of this event. The communication strategy and tools defined by the local organising team to reach the targeted audiences and to guarantee the success of the forum will also be presented.

1. Setting the frame

1.1 From a knowledge-based economy to a knowledge-based society

1.1.1 Building a European scientific union: historical background

The constitutional basis of the European Union was first established on 25 March 1957 with the *Treaty on the Functioning of the European Union* (also known as the *Treaty of Rome*⁷), signed by Belgium, France, Italy, Luxembourg, the Netherlands and West Germany. The treaty established the creation of the European Economic Community, a purely economic and trade union without a political or cultural identity yet. At the time, each member State used to have its own science and research policies. In the 50s and 60s we observe the internationalisation of the knowledge production, with the advent of the so-called “big science”: huge laboratories and new infrastructures, such as the European Organization for Nuclear Research (CERN, est. 1954), the European Southern Observatory (ESO, est. 1962) and the European Molecular Biology Laboratory (EMBL, est. 1974), are built with the common effort of many different countries, soon becoming international workplaces where to advance science and innovation. During the following decade, the “network science” comes in: under the pressure to fill the technological gap with Japan and the US, scientific research is now primarily aimed at economic development, it addresses citizens’ needs and starts involving the industrial sector. In the 80s, the watchword become competitiveness on the global market, with a particular focus on key technologies. A coordinated research policy or common scientific programmes didn’t exist among European States, worried to lose part of their own national sovereignty. In order to bring together expertise from across Europe and to define a common agenda of research technological priorities, the European Community set up its first multi-annual funding programme in 1984. Since then, seven other Framework Programmes (FPs) have been created, fostering research cooperation in Europe.

⁷ Full text available at:

https://ec.europa.eu/romania/sites/romania/files/tratatul_de_la_roma.pdf

«As the scope of the framework programme widened and with the multiplication of the type of instruments used to implement it, the framework programme progressively supported all activities of the innovation process, research being just one of them⁸».

In 1986, the Single European Act enshrined research policy in the EEC Treaty, providing the first legal basis for a Community research policy. With the Maastricht Treaty, signed six years later in 1992, the European Union officially becomes a political entity (other than economic and budgetary), and scientific research is one of its fields of action. The consequent scientific research policies get inevitably affected by the newly born concept of European citizenship, which still needed to be shaped: more and more fundings are devoted to improve life-quality; top priorities become social needs, social cohesion, the reform of the education system and the spread of a new culture of innovation.

The Lisbon Strategy defined in 2000 launches a knowledge-based economy: knowledge is now recognized as an essential condition to ensure economic growth, social welfare and occupation. To this purpose, a multinational research cooperation becomes vital: in the same year, the creation of a European Research Area (ERA) is proposed and endorsed by the European Commission. A system of scientific research programs integrating the scientific resources of the European Union, ERA was conceived as a research and innovation equivalent of the European common market for goods and services, with the aim of increasing competitiveness of European research institutions.

The deep financial crisis of 2008 emphasises once more that science and innovation do not only have a role in shaping European culture, but could become crucial to ensure economic recovery. For this, on 3 March 2010 the European Commission proposed the 10-year strategy *Europe 2020* for advancing the economy of the European Union. It was conceived to succeed the Lisbon Strategy, which covered the period 2000-2010. Among the headline targets identified to boost growth and employment, the strategy features an increase of employment rate up to 75%, a

⁸ V. Reillon, "EU framework programmes for research and innovation: Evolution and key data from FP1 to Horizon 2020 in view of FP9", European Parliament Think Tank, 2017 [http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_IDA\(2017\)608697](http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_IDA(2017)608697)

minimum 3% of GDP invested in R&D, a 30% reduction of greenhouse gas emissions and a target 20% increase in energy efficiency, the reduction of early school leavers and bring 20 million people out of poverty. The eighth FP, renamed *Horizon 2020*, was one of the implementing tools of this strategy.

1.1.2 Current science perception in Europe

The science policy actions described in the previous paragraph have somehow reflected the complex and constantly evolving relationship between science and society over the years.

But what is the public perception of science today? According to Eurobarometer analysis, European citizens have the highest level of scientific proficiency ever observed, with a 50% in 2014 who have studied science (less percentages are only found in Slovenia, Slovakia and Czech Republic). The interest in these topics is high, the main information source remains television and people only rely on the web to look for specific notions. A vast majority, though, expresses serious doubts on the way media discuss about scientific issues⁹. Citizens' trust has often been undermined by the specific narratives created around science: an emphasised primacy of rationality and positivism and the consequent valorization of facts in opposition to moral and personal values, for example, have surely contributed to increase the gap between the scientific realm and the societal one.

Overall, Europeans share a positive attitude towards science, regarded as a tool for progress. At the same time, they are well aware of the fact that science can't be the solution to all issues of our times¹⁰: most of them, for example, do not believe that it contributes to create new jobs and reduce inequalities¹¹.

Another interesting aspect emerging from these studies is that people feel to have a little influence in science-based political decisions (4 in 5), most of them (2 in 3) don't

⁹ European Commission, *Qualitative study on the image of science and the research policy of the European Union*, Eurobarometer - qualitative study, Brussels, 2008

¹⁰ European Commission, *Europeans, Science and Technology*, Eurobarometer 55.2, Brussels, 2001

¹¹ European Commission, *Public perceptions of science, research and innovation*, Special Eurobarometer 419/Wave EB81.5, Brussels, 2014

know how to get their voice heard about these topics^{12,13}, and only a minor 10% declares to have attended public debates and events about scientific issues¹⁴, highlighting the need to offer more formats and places to foster an open discussion.

The role of scientists in political decision making is a topic European citizens have strong opinions about: people value scientific professionals and want them to take decisions about science-related issues, but not before having consulted the general public, as a strict separation between facts and values is not conceivable. Also, the 80.3% of respondents in 2001¹⁵ supported the idea that public authorities force scientists to respect ethical standards.

Overall, Europeans value scientists' work. They think health, creation of new jobs and the safeguard of the environment should be among the top priorities of modern research, and they strongly support actions by European authorities to get more women and youngs into research. But they also agree that scientists are not able to communicate the relevance of their research and should put more efforts into public engagement. This will be crucial to reduce a commonly felt gap between science and society, which doesn't seem to have changed much over time.

As for the state of research and innovation, people believe that's weak and insufficient in their own countries due to budgetary problems, low appeal of careers in science and a lack of political vision by the State. Among possible solutions to improve the level of research in the EU, citizens suggest a fostered cooperation between member states, networking between public institutions and industries and a better coordination of the available resources.

¹² European Commission, *Social values, Science and Technology*, Special Eurobarometer 225/Wave 63.1, Brussels, 2005

¹³ European Commission, *Europeans, Science and Technology*, Special Eurobarometer 224/Wave 63.1, Brussels, 2005

¹⁴ European Commission, *Science and Technology*, Special Eurobarometer 340/Wave 73.1, Brussels, 2010

¹⁵ European Commission, *Europeans, Science and Technology*, Eurobarometer 55.2, Brussels, 2001

1.2 EuroScience: vision and history

EuroScience is a non-profit association representing European scientists in all areas of knowledge working in universities, research centres, public institutions and business sectors, across the public/private sphere. This pan-European grassroots organization is open to research professionals, science administrators, teachers, PhD students, policy makers, industrialists and generally to any citizen interested in science and technology and their links with society. It aims to shape a scientific Europe from the bottom-up¹⁶, to undertake to advance science and innovation and to be an umbrella for European organisations in the field of science. EuroScience was founded in 1997 on the model of the American Association for the Advancement of Science (AAAS), the world's oldest and largest general science organization which has already existed for almost 150 years¹⁷. EuroScience General Secretary Dr Peter Tindemans declared:

Back then, we already had few similar organizations in Europe, the British Association for the Advancement of Science for example, but in most countries such an organization did not exist. As the amount of collaboration in Europe had increased a lot since the early 80s with the Framework Programmes, people started thinking they should try to have a European organization of scientists and people interested in science¹⁸.

In 1997, a meeting attended by nearly 250 people was organized in Strasbourg to discuss the first draft of the statute. The original vision of the association has remained unchanged since and it can be summarized in four cornerstones¹⁹:

- Contribute to the integration of Europe through the promotion of the idea of a threefold citizenship among scientists and scientific institutions in Europe: a European citizenship, a disciplinary and a national (and regional) one.

¹⁶ EuroScience, "Making science European", *The Parliament Magazine*, Supplement 2012

¹⁷ American Association for the Advancement of Science, "About AAAS", retrieved 27 July 2016 <https://www.aaas.org/about/mission-and-history>

¹⁸ Full interview with Dr Tindemans in Appendix 2

¹⁹ EuroScience, "About us" <https://www.euroscience.org/about/>

- Enhance the contribution of science to the well-being and prosperity of mankind and enrich society in dealing with the political and ethical issues confronting it.
- Influence the shaping of policies for science in Europe, at a national and European level.
- Raise awareness of the important issues linking science to society, and actively promote dialogue at the European level between scientists and other stakeholders in science.

For over twenty years now, EuroScience has supported scientists to «make themselves heard in higher places and to improve their mobility, career, status, funding and public perception²⁰», as highlighted by Professor Jean Patrick Connerade, former EuroScience President and now President of the European Academy of Science Arts and Literature. Today, the association counts 2600 registered individual Members in 77 countries and 14 Corporate Members. It is engaged in a set of different activities²¹: it organises meetings at the international and regional level, publishes position papers, edits the free online magazine *EuroScientist* which also manages a blog²² to discuss the working and living conditions of scientists in Europe, it grants awards (such as the European Young Researcher Award, the Ramaml Award and the European Science writers Award) and it's involved in many European projects. It established and keeps running the EuroScience Open Forum, a biennial travelling meeting dedicated to science and innovation.

²⁰ EuroScience, Programme Book EuroScience Open Forum 2004, 2004

²¹ EuroScience, *Statutes*, official report approved by the EuroScience General Assembly on June 24, 2014 in Copenhagen

²² EuroScientist, *Homo Scientificus Europaeus*: <https://blog.euroscientist.com/>

1.3 The EuroScience Open Forum

1.3.1 More than a festival

«I was elected onto the board of EuroScience in 1998 and I soon realize we needed to elevate it, to increase its impact. I believed that Europe needed to come together in some type of forum to discuss the importance of science and technology for development and democracy²³» says Professor Carl Johan Sundberg. Physiologist at the Karolinska Institutet in Stockholm with a longtime interest in sharing science with the public, he first proposed the tentative concept of an independent EuroScience Open Forum (ESOF) in 1999, inspired by the AAAS annual meeting in the US²⁴. The concept was then defined in a more institutional way in 2002, within the Science and Society action Plan²⁵ by the European Commission: an activity named as European Convention for Science was mentioned there.

ESOF first edition took place in Stockholm in 2004²⁶ and, since then, it has been organized every other year in a major European city: Munich, Barcelona, Turin, Dublin, Copenhagen, and Manchester.

At first, when ESOF was introduced, «the emphasis was on providing an open space for science to be discussed in its widest sense²⁷». In this, the “O” staying for “open” is dense of meaning: ESOF is an *open* format within the city, alongside the rest of the cultural scene, it's *open* to young scientists and new publics, it *opens* the policy agenda to a wider audience, it fosters *open* interdisciplinary exchange, it *opens* to an extended notion of research system.

Along the years, many have compared this forum to common science festivals, yet there are many reasons why it's different. It's a fully European arena that transcend national borders, reaching sizes (in terms of number of events, thematic sessions and speakers) as no other local festival did.

²³ Full interview with Professor Sundberg in Appendix 2

²⁴ Nature editorial board, *A meeting for Europe's scientists and publics*, in «Nature», Vol. 423, 2003

²⁵ European Commission, *Science and Society – Action Plan*, Luxemburg, 2002

²⁶ Nature editorial board, *Science on show in Stockholm*, in «Nature», Vol. 430, 2004

²⁷ G. Cardew et al., “Open before it was fashionable: ESOF on socially minded science”, *Research Europe*, 14 July 2016

ESOF format has multiple goals, which haven't changed over the years: to gather scientists from different fields, to engage citizens and to foster debate about specific issues at the interface between science and society. It is a key institutionalised platform that accommodates voices and interests of a diverse set of actors, bringing the close intertwinement between science and society in the spotlight. Its vision and multidisciplinary taste mimic those of the AAAS meeting. Nevertheless, some differences can be pointed out: first of all, ESOF runs on a smaller scale, taking place every other year, and it has never lost its well distinct European focus²⁸. Differently from its American counterpart, ESOF gives more space to public engagement, it introduces new programmes, and it features more interactive formats. Its outreach activities take place in the city centre, embedded within the social texture, and not in an edge-of-town conference venue: they include science exhibitions, poetry readings, cafés, film festivals and many more activities able to pique the interest of a wider audience. In addition, the two meetings start from profoundly different playgrounds: if the AAAS one originates in a fairly homogeneous environment, ESOF has to face more complex challenges, it requires a higher degree of openness and flexibility, having to deal with a variety of languages, academic traditions and socio-political systems.

Over time, ESOF has been sponsored by various local and international partners, featuring institutions and companies. Their nature and number change considerably according to the hosting country: in some cases, such as in Stockholm, the number of national and European partners was more balanced than in others. One thing, though, has remained unchanged: due to ethical considerations, scientific sessions have never been sponsored by privates, so as to ensure their neutrality.

1.3.2 A travelling Forum: criteria for selecting the host city

Since 2004, the EuroScience Open Forum has been taking place every second year in a major European city. The host city is chosen by a committee made up of five EuroScience Governing Board members and five external members chosen because

²⁸ M. Enserink, *Europe clones U.S. Science Festival*, in «Science» Vol. 305 pp. 1387, 2004

of their connections throughout Europe. The committee is chaired by Professor Gail Cardew²⁹, from the Royal Society. She explains how the selection procedure has changed slightly over the years:

We used to ask for expression of interest from cities and ask them straight away for full proposals (...) but we felt it was not fair as they were spending resources to come up with really wonderfully developed proposals. Now we adopt a two stage procedure: we invite expressions of interest and then we, as a committee, decide which of those cities stand with really good chances of going forward. Only then we ask for full proposal³⁰.

Once proposals have been received, the committee starts evaluating them on the basis of three key parameters: the selected Champion, the scientific identity of the city and the venue. The first thing that has to be in place is a really strong Champion, with renowned scientific credibility and good influence at the local and national level, which can help in future fundraising activities. Along with this, the selected city has to be a well defined scientific identity, it must hosts a collective of scientists and researchers. Last important ingredient is the venue: as, from the very beginning, ESOF was firmly rooted in the city, it's crucial that the city centre has a conference venue able to accommodate up to 4500-5000 people, plus parallel sessions.

So far, ESOF has been hosted in Sweden, Germany, Spain, Italy, Ireland, Denmark, the UK and France. With Trieste being selected to host the ninth edition in 2020, Italy is the only European country that has been selected twice. The committee doesn't have a strict policy in terms of organizing ESOF in a specific country. They encourage people who have never applied before (they try to have more applicants from the Eastern Europe, for example), but they will never force a country to get involved.

²⁹ Full interview with Professor Cardew in Appendix 2

³⁰ Full interview with Professor Cardew in Appendix 2

1.3.3 New frames to talk about science

The EuroScience Open Forum is a multifaceted science communication product that well represents the heterogeneity of this field, drawing on different formats and including all the actors involved. By doing so, it is one of the best candidates to provide a constantly up-to-date picture of the complex relationship between science, technology and society.

On the one hand, ESOF depicts the evolution that the scientific system is undergoing, «moving towards a more open and complex era where sharing your work with as many people as possible, using as many different formats as possible, is preferable or even obligatory³¹». It has been a long process which is still under way, as Professor Gail Cardew describes:

When we first started ESOF, I fairly quickly lost count of the number of scientists who said we couldn't possibly succeed. These were scientists who couldn't quite understand why anyone would want to step outside the comfy world of their subject-specific conferences. In other words, scientists who were unable or unwilling to see why their research was of any interest to anyone but their peers³².

On the other hand, it overcomes a purely top-down model, rather embodying the ethnographic turn within *public understanding of science* which places emphasis less on cognition and more on culture and context³³. Inclusion, co-production, participation and progress become the main frames to talk about science. The concept “Science *and* society” mentioned in the fifth FP (in 2002) evolves into “Science *in* society” within the sixth FP (in 2006) and it finally turns into “Science *for* society *with* society”, as defined in the eighth FP Horizon2020.

This definitive crisis of a “Public Understanding of Science” scheme, based on the deficit model and well established in the 80s, leads to major outcomes: to foster democracy and dialogue, to build trust in the mechanisms of the scientific system, to

³¹ G. Cardew, “A breath of fresh air?” <http://www.rigb.org/blog/2014/june/esof-2014> (2014)

³² Full interview with Professor Cardew in Appendix 2

³³ A. Irwin and M. Michael, *Science, social theory and public knowledge*, Maidenhead Open University Press, 2003

reach joint decisions to the benefit of the whole European society, to see science as an intrinsic part of our culture, and to define a strong sense of European identity based on knowledge. This is undoubtedly the most relevant conceptual framework within which to examine the emergence of the Euroscience Open Forum.

1.3.4 The future of ESOF

As declared by its own ideator, Professor Sundberg, ESOF is only one tentative format to gather publics interested in science in Europe. It's not the first, neither the only one. Another successful format is, for example, *Falling Walls*: this annual one-day scientific conference takes place in Berlin from 2009, showcasing the research work of international scientists from various fields. Differently from ESOF, it runs for one day only, it doesn't offer the same variety in terms of publics and events, and it is always hosted in the same city. In this respect, the idea of shaping and integrating European society by sharing knowledge is more reflected by ESOF.

Now the question is: will ESOF survive in the future? Would it still be needed? At the beginning, many were sceptical about its future success. Professor Sundberg himself was very cautious: «I predicted that either it failed after two or three editions because of a lack of interest, or it would have continued for a long long time³⁴».

By analysing the evolution of this event over fourteen years, we are now able to spot its strengths and weaknesses: the original concept is still current today, and its message deeply needed by our society. Nevertheless, it's not a fully stable product yet. It will need time to develop further, learn from past mistakes, attract to new publics. Professor Sundberg is convinced that only in ten years time we might be able to acknowledge its success or defeat.

³⁴ Full interview with Professor Sundberg in Appendix 2

1.4 Research questions

In 2012, the European Commission's chief scientific advisor Professor Anne Glover declared: «If you want to live the spirit of European science, ESOF is the place you have to be³⁵». Does everybody agree? This work aims to understand whether ESOF is a good framework to reflect the evolution of the scientific enterprise and science communication in Europe. The scientific system has changed greatly over the past decade, becoming more and more open to incorporate societal elements, methods and actors. At the same time, science communication has started employing new formats and languages to reach diverse audiences. Has ESOF been able to describe these processes? Has it played any active role in them? Has it showcased the key actors involved in the production and dissemination of knowledge today? Can we observe a change in the general perception of science through the evolution of its formats? Has it contributed to shape a new shared European identity and common ideals borrowed from science?

To answer these and other related questions, in this dissertation I have employed ESOF as an experimental platform where to investigate and follow the definition process of the new relationship between science and society, the reconfiguration of the subtle interface between them and the evolution of both. «It features as a laboratory where imaginations on science and Europe, such as the idea of a European knowledge society, emerge and are formed³⁶».

I have analysed the birth and implementation of ESOF over its first seven editions. Looking at official figures and final reports, I have been seeking the original purposes it was created for, all the actors involved, the mostly discussed themes, the legacy at a local and international level, the potential influence of European policies. I also closely focused on the communication strategies and tools adopted at each edition: has the picture of science depicted within the forum changed? Have new audiences emerged and new targets addressed?

³⁵ Dods Group plc, "Making science European", *Parliament Magazine Special Supplement*, October 2012

³⁶ E. Chelioti, *The EuroScience Open Forum: an experiment in constructing and performing European knowledge societies*, Doctoral Thesis, Universität Wien, 2017

All these topics will be also discussed in the frame of the preparatory activities of ESOF 2020 Trieste, in which I have been directly involved. What communication strategy has been defined? What aspects is it declined on? What are the key messages to convey and the adopted tools? I will try to answer all these questions while presenting the communication plan defined for the current year 2018. By closely following each step of the construction process of this plan, I have tried to point out differences and similarities with what have been done for previous ESOF editions.

2. Research Methods

The research strategy adopted in this study is based on two complementary methodological approaches often used in qualitative research: these are content analysis and personal interviews. Together, they provide a detailed portrait of the EuroScience Open Forum multifaceted phenomenon, shedding light on the main features of this format, its evolution over time and its connections in the European science communication realm.

A detailed analysis of the role of social media channels within ESOF communication strategy has been intentionally left out of this research, the main reason being such media tools have significantly entered the scene only in 2012, at the fifth event hosted in Dublin. In this respect, a full comparison between all past editions wouldn't have been possible. The unquestionably crucial role of social media clearly deserves a separate comprehensive investigation, which goes beyond the purpose of this work.

2.1 Documentary research and content analysis

Documentary research methods refer to the analysis of written documents that contain information about the object of the study³⁷. This technique is used to categorise, investigate and interpret a particular phenomenon, in this case the evolution of science communication within the frame of EuroScience Open Forums.

The planning of this investigation has started with the identification and the collection of both public and private relevant written documentary sources, mainly through the EuroScience Office, the official ESOF webpage and the website of the European Commission. All the selected sources had to meet the four quality control criteria formulated by British sociologist John Scott in 1990 to ensure accurate, meaningful and bias-free investigations: authenticity, credibility, representativeness and meaning.

³⁷ K. Bailey, *Methods of social research*, The Free Press New York, 1994

In particular, to gather information about the contents, the formats and the audiences of the seven past ESOF editions since its creation in 2004, I have relied on the ESOF programme books and the final reports drafted by ESOF Project Teams. When such documents were not available, i.e. in the case of the future ESOF editions in Toulouse (2018) and Trieste (2020), I analysed the successful applications submitted by the two cities to EuroScience. I have supplemented these resources with official documents from European institutions, notably six Eurobarometers Surveys conducted on behalf of the European Commission between 2001 and 2014 to investigate the evolution of European citizens' perception and attitude towards science and technology over time within the time frame considered for this study. I have also referred to official communications from the European Commission to gather more information about the research policies and measures adopted at Community level.

Once relevant materials have been selected, I have started a systematic text content analysis³⁸, the purpose of which is to organize and elicit meaning from the collected documents. In the case of ESOF final reports and programmes, I have explored their content with the support of two personally designed analysis grids (*Appendix 1*) containing a number of categories of interest³⁹ to be taken into account: one grid focuses on the evolution of the format of the event, the other one is merely devoted to the communication strategy adopted at each edition. Tentative categories have been first identified according to their relevance to the research question. While working through the texts, these have been revised and eventually reduced to the following:

- as for the first grid: motto, key messages, targeted publics, events, major topics, number of participants, sponsors, new formats, legacy
- as for the second grid: communication goals, targeted actions, visual identity, communication materials, multimedia tools, advertisement campaigns, media collaborations, media coverage

³⁸ M. Bengtsson, *How to plan and perform a qualitative study using content analysis*, in «NursingPlus Open» Vol. 2, 2016

³⁹ P. Mayring, *Qualitative Content Analysis*, in «Forum Qualitative Sozialforschung / Forum: Qualitative Social Research», Vol. 1, 2000

Ultimately, I've proceeded with the analysis, comparison and interpretation of relevant data and results.

Document analysis comes with several advantages. It's an effective way of gathering data through accessible and reliable sources, it's far more cost- and time-efficient than conducting a personal research. In addition, written documents represent stable data sources that can be read and reviewed multiple times and won't change along the research process⁴⁰. Unfortunately, documentary research comes with some disadvantages too. Available materials can be inaccurate or incomplete. In this specific case, not all reports were equally systematic or fully comparable for each edition. Furthermore, they did not always provide all the information that would have been required to answer the research question, which left substantive gaps in the study. For this reason, my analysis has been implemented through another investigation tool, the personal interview.

2.2 Individual interview: probing stakeholders' point of view

After having deepened my initial knowledge about the topic by reading documentary material, I have decided to rely on personal interviews to compensate for unavailable data, to enrich and deepen the analysis, and to investigate the motivation/expectations of influential actors who, in various ways, had shaped the EuroScience Open Forum over the years. I have conducted nine individual semi-structured interviews⁴¹ with stakeholders who have been carefully identified and selected as key figures involved in the ESOF undertaking: some of them have conceived and developed the original idea of the format, some have contributed to the organization of the event, others are representatives of specific targeted audiences. In more detail, the stakeholders' representatives chosen are:

⁴⁰ G. A. Bowen, *Document analysis as a qualitative research method*, in «Qualitative Research Journal» Vol. 9 (2009)

⁴¹ H. Arksey and P. Knight Peter, *Interviewing for social scientists: An introductory resource with examples*, SAGE, 1999

- **Dr Effrosyni Chelioti**, Chair of the ESOF 2010 Turin Communication Committee, member of the ESOF 2006 Munich Steering Committee, member of the ESOF 2008 Barcelona and ESOF 2010 Turin Programme Committee;
- **Dr Raphaela Kitson-Pantano**, Vice President of EuroScience, member of the ESOF 2018 Steering Committee; Director of the ESOF Headquarters in Strasbourg in 2012, she is also Head of International Health Relations at AXA Global Life;
- **Professor Gail Cardew**, Chair of the ESOF Supervisory Board⁴² and Board Member of EuroScience, Vice President of EuroScience from 2006 to 2012; she is the Royal Institution Professor of Science, Culture and Society, and Director of Science and Education;
- **Professor Carl Johan Sundberg**, initiator of the EuroScience Open Forum, Board Member of EuroScience, Champion ESOF 2004 Stockholm, Vice President of EuroScience from 1998 to 2012; Professor of Molecular & Applied Exercise Physiology at the Department of Physiology & Pharmacology at the Karolinska Institutet and Head of the Department of Learning, Informatics, Management and Ethics (LIME);
- **Dr Peter Tindemans**, Secretary General and Board Member of EuroScience;
- **Professor Andrea Ferrari**, keynote speaker at ESOF 2010, Turin and participant at ESOF 2012, Dublin; Professor of Nanotechnology, Director of the Cambridge Graphene Centre and of the EPSRC Centre for Doctoral Training in Graphene Technology at the University of Cambridge (UK); ERC Starting Grantee in 2007;
- **Professor Stefano Fantoni**, Champion ESOF 2020 Trieste; President of Fondazione Internazionale Trieste (FIT) from 2008 to 2011 and from 2016 since now.

⁴² This body governs the strategic direction of ESOF and is in charge of selecting host cities.

- **Professor Milena Žic Fuchs**, member of the ESOF 2016 and ESOF 2018 Steering Committee; from 2008, member of the ERC Advanced Grant Panel SH4 “The Human Mind and Its Complexity” and Chair of the Panel from 2014 to 2015; from November 2016, member of the High Level Group on maximising the impact of EU Research and Innovation programmes; Croatian linguist and full member of the Croatian Academy of Sciences and Arts, she served as the Croatian Minister of Science and Technology in the cabinet of Zlatko Mateša from February 1999 to January 2000; Professor at the University of Zagreb;
- **Professor Fernando Quevedo**, Director of the International Centre of Theoretical Physics Abdus Salam (ICTP), Trieste; speaker at the AAAS annual meeting in 2018.

In most cases, interviews have been conducted over Skype. I have opted for a phone interview three times, while I only had the chance to meet the interviewees in person twice. All interviewees have been first contacted by a presentation email. Once they agreed to contribute to the study, they were asked to fill a release form to allow the usage of the information they provide, as well as their personal quotation. Starting off with six persons, a snowball sampling approach has been adopted, which enabled me to reach three more relevant subjects for the study. Interviews took place from 12 to 29 March 2018, in the order listed above. They have been held in English, except for those to Professor Stefano Fantoni and Professor Andrea Ferrari, held in Italian and then translated into English.

Conversations have been recorded on an audio support and then manually transcribed (complete transcriptions can be found in *Appendix 2*). Their content was later analysed to extract quotes and relevant information for the study. Before each interview I used to draft a list of specific questions and topic areas I wished to cover. The real-time discussion could lead to follow-up questions, often raised from the responses given by my interlocutors, that I juxtaposed to the already set ones.

As part of the study, I identified few subjects to be investigated and developed throughout the conversation:

- evolution of the ESOF format over time
- goals and legacy of each edition
- scientific contents
- communication targets and addressed publics
- opening to the East and to the Balkans
- representation of humanities

Some more general questions have been asked to all interviewees, in order to gather multiple points of view on specific aspects, whereas other questions have been tailored for each respondent, according to their role and experience within ESOF.

The semi-structured format here adopted is a quick method for gaining in-depth data. It has several advantages: it involves a more direct interaction than questionnaires, thus allowing «depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand the interviewee's responses⁴³». The informal setting of the discussion encourages openness and trusts in the respondents: they feel more at ease than in a structured questionnaire or experiment, being likely to explain their view more fully. At the same time, the researcher can probe and ask to clarify parts of the given answers at any moment, he can adjust, rephrase or restructure questions as the interview develops.

Practical disadvantages of this method are the relatively long time required to prepare, conduct and transcribe the interviews. In addition, a lot of information risks to not be directly relevant to the research topic and it needs to be sifted through^{44,45}. It can be difficult to quantify data, to compare answers and to find trends from the gained qualitative data. The representativeness and the reliability of the sample, both key aspects of this research method, have been guaranteed through a careful selection of the interviewees, based on the topics to be covered.

⁴³ H. J. Rubin Herbert and I. Rubin, *Qualitative interviewing: the art of hearing data*, Sage Publications, 2005

⁴⁴ K. Thompson, "Interviews in Social Research: Advantages and Disadvantages" <https://revisesociology.com/2016/01/23/interviews-in-social-research-advantages-and-disadvantages/> (23 January 2016)

⁴⁵ H. Alshenqeeti, *Interviewing as a data collection method: a critical review*, in «English Linguistics Research», 31 March 2014

3. ESOF: a detailed study from 2004 to date

Throughout its first seven editions, visually summarised on the map below, the EuroScience Open Forum meeting has travelled across Europe, being hosted in Stockholm (2004), Munich (2006), Barcelona (2008), Turin (2010), Dublin (2012), Copenhagen (2014) and Manchester (2016). Over the course of years it has grown and undergone a glaring evolution that reflects concomitant scientific, cultural and societal changes. In the next pages, I will try to provide a comprehensive overview of this phenomenon by analysing and combining a number of different elements, all important to define the deeper meaning of this kind of event and its placement within the European societal fabric: from the main themes discussed to the criteria adopted to select the host cities, from the formats and practices presented to the key audiences addressed, from the number of participants to the ways and colors used to depict science. All information provided has been extracted from the official final reports of past editions and, where necessary, integrated with stakeholders' opinions and thoughts collected through personal interviews. I will occasionally mention the upcoming ESOF 2018 event that will take place in Toulouse later this year: for this, I mostly refer to the candidature document presented to EuroScience and to the interviews I have conducted.



Figure 3.1 Location of all ESOF editions from 2004 to 2018

3.1 ESOF: 14-years evolution in numbers

Since its establishment in 2004, ESOF has grown evenly in terms of both participants and activities: according to official reports, the overall number of people registered for the Scientific Programme went from 1810 in 2004 to over 4000 in the latest editions, while people attending public events have risen from 11,000 to 40,000. Featured speakers have almost tripled in twelve years (reaching a total of 717 in 2016), the number of exhibitors and types of formats followed the same trend. Even if the large majority of the conference participants come from EU Member States, with a higher proportion from the host nation, the total represented countries raised from 67 in 2004 to over 80 in the last event in Manchester. This reveals a clear intent to internationalise ESOF approach further and to enhance its profile as a platform for world-wide exchange. As for gender balance, ESOF has endeavoured to constantly improve it: if women only accounted to the 28% of speakers in 2006, they reached the 42.5% in 2016.

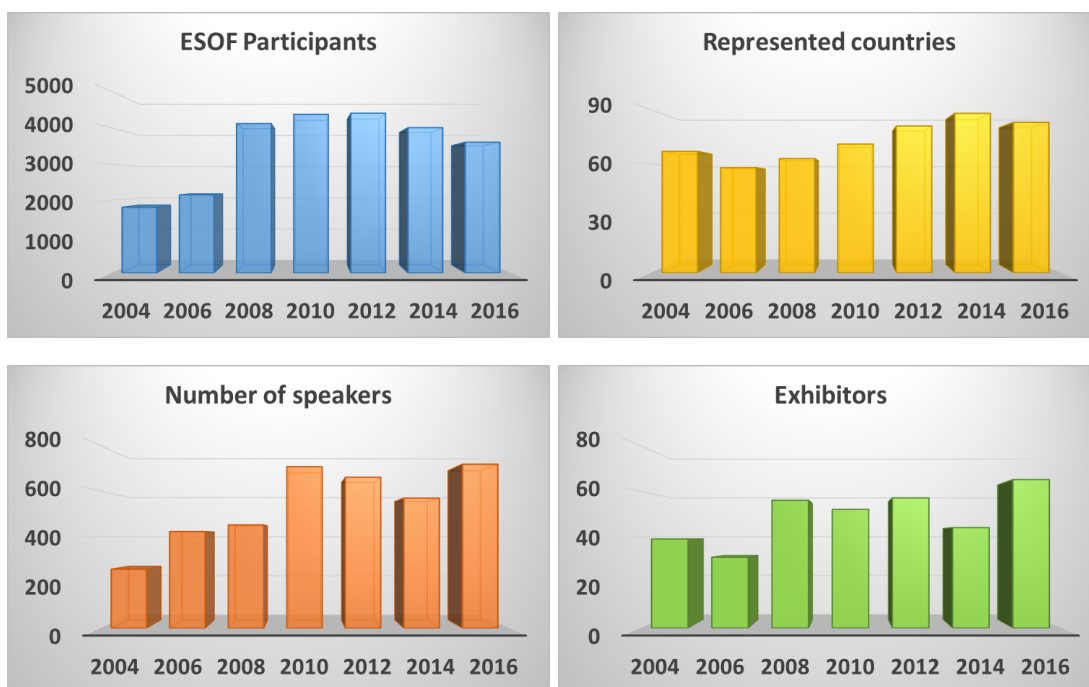


Figure 3.2 Evolution of the number of participants, represented countries, speakers and exhibitors over the first seven ESOF editions, from 2004 to 2016.

The overall format has been gradually enriched. Next to the traditional Scientific Programme, Outreach Programme and the Science in the city Festival, new programmes and activities have emerged: the Career Programme and the *Science meets Poetry* session were activated in Munich in 2006; a new Business Opportunity Programme was featured in Barcelona; this evolved into the Science to Business Programme, first introduced as a fully independent programme in Turin; in line with the activation of a set of policies at the local, national and European level⁴⁶ to encourage educational innovation processes, a School Programme was also activated in 2010. In more recent editions, the format has been implemented with the Science Policy Programme (Copenhagen, 2014), the Responsible Research and Innovation Programme (Manchester, 2016) and the Science to Media Programme (Toulouse, 2018).

Other special activities have been organized for:

- Teachers: e.g. a special Teacher Programme set in Turin.
- Students: e.g. the online platform *ESOF Teens*, providing an interactive virtual research experience, created in 2008; the European students Parliament set in Copenhagen in 2014.
- Young researchers: e.g. the popular *Meeting with the Prof* lunch session, ever-present since 2006; the *Science bus* introduced in 2010, that involved 40 young scientists travelling between Barcelona and Turin to discuss about science.

3.2 The format

3.2.1 Motto

All EuroScience Open Forum editions, with the only exception of the first event in Stockholm, have an official motto. In the order:

⁴⁶ European Commission, Eurostat <http://ec.europa.eu/eurostat/web/europe-2020-indicators>

- New Research, New Technology, New thinking (ESOF 2006 Munich)
- Science for a better life (ESOF 2008 Barcelona)
- Passion for science (ESOF 2010 Turin)
- Your forum. Your future (ESOF 2012 Dublin)
- Science building bridges (ESOF 2014 Copenhagen)
- Science as revolution (ESOF 2016 Manchester)
- Sharing Science: towards new horizons (ESOF 2018 Toulouse)

Chosen by the local ESOF Champion, each of these slogans highlights a specific attribute of science: novelty, usefulness, passion, inclusion, innovation, multidisciplinary, sharing. «The motto puts forward only one aspect and it is not supposed to be exhaustive. It is good because you can use it for publicity reasons, but ESOF is a very flexible concept, aiming to cover a well-rounded concept of science⁴⁷», says Dr Peter Tindemans, EuroScience General Secretary.

The first three mottos convey a highly positive idea of science: source of innovation and life-improving, it is something everyone should be passionate about.

In Dublin, the slogan is still projected into the future (*Your future*), but now the publics of ESOF become integral part of it (*Your forum*): key concepts become inclusion, participation and membership.

In 2014 and 2016, words seem to be selected to depict a particular aspect of science with the primary aim to sponsor the host city/country. On the one hand, “*Science building bridges*” refers to the numerous and well-known Danish bridges, while it emphasises the importance of a two-way communication and the need «to strengthen the effective ‘bridges’ between science and all corners of society: between the private and public sector; between science and media; between Europe and the rest of the world⁴⁸». On the other hand, the motto of ESOF 2016 Manchester “*Science as revolution*” reflects on the city’s impressive legacy of its scientific endeavour, from the industrial revolution to the present: Manchester is where Ernest Rutherford first split the atom, Alan Turing created the programmable computer, and it is now home to graphene.

⁴⁷ Full interview with Dr Tindemans in Appendix 2

⁴⁸ Professor Klaus Bock, ESOF 2014 Champion, *ESOF 2014 Programme Book EuroScience Open Forum 2014*, 2014

Coming to the ESOF 2018 motto, it sets the focus on the European policy of research: by introducing the concept of “*new horizons*”, it clearly alludes to the eighth European Framework Programme *Horizon2020* ending in 2020, and it prepares the ground for the new Programme due to start in January 2021.

3.2.2 Selected topics

The ESOF programme includes an overwhelming variety of science-related topics and cross-cutting issues: from the latest scientific discoveries to open access, from nanotechnologies to urban design, from science diplomacy to big data. Since the beginning, particular attention has been given to the European science policy: ESOF 2004 and ESOF 2006, for example, closely followed the design and evolution of the European Research Council (ERC) till its established in January 2007, while following editions offered a valuable gathering platform for stakeholders and the first ERC Starting Grant holders.

Certain themes dominate some editions rather than others: science communication was largely discussed in 2006 but took less space in 2008, when stronger emphasis was given to bridging the gap between academia and industry. Some of the topics recur at each edition, others are chosen for the strong link with the host city or with concomitant events and discoveries. As an example, two of the hottest topics at the past ESOF 2016 Manchester have been *graphene*, innovative material discovered at the University of Manchester in 2004, and the *science post-Brexit*, a topical and highly debated issue only a few weeks after the British vote⁴⁹.

The most recurring topics at ESOF seem to also correspond to the most funded scientific areas by the eight EU Research Framework Programmes (FP)⁵⁰ from 1984 to date, namely climate change, energy, medicine and population ageing, and science policy. As recent Eurobarometer surveys⁵¹ reveal, these are also European

⁴⁹ A. Asthana et al., “UK votes to leave EU after dramatic night divides nation”, *The Guardian*, 24 June 2016

⁵⁰ R. Giuffredi, *Costruire l'Europa comunicando la scienza. I Programmi Quadro per la ricerca e l'integrazione europea*, Master in Science Communication Franco Prattico, a.a. 2012-2013, February 2014

⁵¹ European Commission, *Public perceptions of science, research and innovation*, Special Eurobarometer 419/Wave EB81.5, Brussels, 2014

citizens' top scientific interests. According to Professor Carl Johan Sundberg, though:

Topics are chosen in accordance with societal and scientific challenges and they are inevitably influenced by current developments. They didn't align with European guidelines in any conscious way⁵².

Theme	2004	2006	2008	2010	2012	2014	2016
<i>Climate change</i>							
<i>Energy and resources</i>							
<i>Science policy</i>							
<i>Medicine, nutrition, ageing</i>							
<i>Space</i>							
<i>Science communication</i>							
<i>Nanotechnology</i>							
<i>Liveable cities, urban design</i>							
<i>Science diplomacy</i>							
<i>Venture capitals</i>							
<i>Big science, big data</i>							

Table 3.1 Top themes discussed at ESOF, from 2004 to 2016.

As a matter of fact, the final program is the result of a three-step process: (1) the Programme Committee identifies few thematic areas of interest; (2) a call for proposals is launched to collect ideas and to get people from several countries

⁵² Full interview with Professor Sundberg in Appendix 2

engaged to define and organize most of the sessions of the program (bottom up approach); (3) a few slots are reserved and curated directly by members of the Committee (top down approach), mainly to address imbalances in the coverage of important topics that might be left out from the bottom-up sessions. Such a mixed approach reveals how ESOF truly experiences the final overcoming of the PUS model from the 80s in favor of a more collaborative construction of knowledge and a truly inclusive vision of science.

Final reports suggest the most popular topics among participants remain those related to individuals (such as the ebola outbreak or Brexit implications for research) or to big scientific discoveries (the Higgs Boson, gravitational waves, CRISPR). With regards to the programme, Professor Milena Žic Fuchs from the University of Zagreb points out how scientific sessions have undergone a clear turn in favor of multidisciplinary:

At the beginning, ESOF used to be very much discipline oriented. If you were a physicist you would only go to the physics sessions. Now this is changing and I think it has to change because we are faced with very important research questions for society and mankind that have to be dealt from a multidisciplinary perspective. Afterall, it reflects where research is going in general⁵³.

An interesting aspect all interviewed stakeholders have agreed on is that ESOF has more and more evolved towards the direction of *science policy*, encouraging the discussion about the mutual role policy and science play for each other, and highlighting the increasing overlap between these two realms. Alongside science policy, the role of humanities and social sciences has also changed. In the beginning, there was practically nothing related to these fields, with final reports often mentioning the lack of sessions on these topics as a shortcoming of the forum. «Now they play a much more prominent role. Maybe still not enough, but prominent. They occur more frequently in interdisciplinary sessions too, you find poetry and physics together, for example⁵⁴» Professor Milena Žic Fuchs says. One of the reasons these

⁵³ Full interview with Professor Žic Fuchs in Appendix 2

⁵⁴ Ibidem

disciplines are still under-represented, though, may lie in the fact that the majority of people involved in EuroScience and ESOF do not have a background in social sciences: only 3 in 19, for example, feature in the current EuroScience Governing Board.

3.3 The publics

Conceived as a European platform open to all parties interested in science, including knowledge producers (scientists, academics), catalysers (companies, policy makers, communicators) and users (teachers, students, non-specialists)^{55,56}, ESOF represents a useful tool to tackle the modern “eco chambers crisis”. It attracts the whole of publics in contemporary science communication: as their individual role is constantly questioned and re-defined, they move across the fluid boundaries between scientific and societal realms⁵⁷. At ESOF, these groups become each other’s publics and new constellations of actors (namely knowledge brokers⁵⁸) arise. In the following, I will discuss in greater detail how the roles, weight and contribution of each players’ group have evolved over time.

3.3.1 Researchers

«The irreplaceable part, the true core of the EuroScience Open Forum is the scientific programme⁵⁹», affirms its initiator Professor Carl Johan Sundberg. Yet, one of the key challenges ESOF faces is to attract more scientists, who still represent a small proportion of the overall participants.

⁵⁵ EuroScience, *Statutes*, official report approved by the EuroScience General Assembly on June 24, 2014 in Copenhagen

⁵⁶ EuroScience, *ESOF 2004 Final Report*, 2005

⁵⁷ S. Jasanoff, *States of knowledge: the co-production of science and social order*, Routledge, 2004

⁵⁸ E. Chelioti, *The EuroScience Open Forum: an experiment in constructing and performing European knowledge societies*, Doctoral Thesis, Universität Wien, 2017

⁵⁹ Full interview with Professor Sundberg in Appendix 2

Senior researchers usually get involved in ESOF only when they are asked to play an active part in the programme as invited speakers, organizers or moderators in one or more sessions. During the forum they usually act as key interlocutors for the media, advocates of the scientific world in policy debates, role models for new generations of academics.

ESOF is not a scientific conference and never intended to be, yet researchers at different career stages could benefit from it in many ways. First, they can take advantage from the different publics they get exposed to: peers, communicators, experts and professionals of other fields can inspire scientists to take their research in new unexpected directions. In this respect, Professor Andrea Ferrari (invited speaker at ESOF 2010 Turin), says:

ESOF it's not a conference where I will go to listen to the latest results and discoveries in my field. The most interesting thing for me was to hear about scientific contents of completely different fields that otherwise I would have never come across⁶⁰.

They also have the chance to reflect on factors that affect their working practice (such as ethics, policy, careers, business, funding) and to discuss important trends facing the scientific community.

To boost scientists' interest in ESOF, though, new strategies and tools must be put in place in the future, as visibility is not granted by an handful of Nobel Laureates who always feature in the programme. Professor Fantoni, Champion ESOF 2020 Trieste, for example, suggests to introduce the publishing, in the frame of the forum, of official acts featuring researchers' work. This would provide a tangible benefit for their career, especially at early- and mid-stages.

Young researchers and PhD students represent a significant stand-alone group of actors ESOF has always been much interested in attracting. Their overall presence dramatically increased over the first five editions (mainly thanks to the special sessions and programmes dedicated to them), then leveled off around the 20% of the total number of participants. Among them, gender balance is well represented (in

⁶⁰ Full interview with Professor Ferrari in Appendix 2

contrast to senior academics) with a 50-50 ratio constantly met and, in some cases, even a prevalence of women⁶¹.

ESOF serves as a networking platform for young researchers «not only in the direction of scientific peers, but also with a view to other relevant professionals whom they are likely to encounter during their career⁶²».

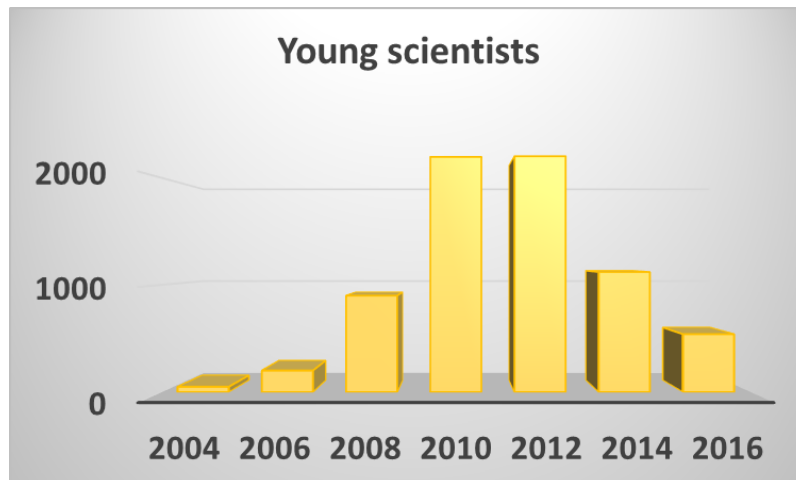


Figure 3.3 Number of young scientists (i.e. less than 35-year-old) attending ESOF.

Mentoring, career planning and professional development within and outside academia are key topics addressed during special sessions (e.g. Meeting with the Prof), as well as in the frame of specific programmes (Career Programme) activated for this target. The ultimate goal is to forge a new generation of scientists that is more receptive to the notion of an “extended” research system where knowledge is co-produced through intensive engagement with other publics.

3.3.2 Private companies

The relationship between ESOF and industry has always been tough and it was often mentioned in final reports as one of the most serious shortcomings of the forum.

⁶¹ EuroScience, *ESOF 2006 Munich Final Report*, 2006. In Munich, among all registered young researchers, 108 were women and 93 men.

⁶² E. Chelioti, *The EuroScience Open Forum: an experiment in constructing and performing European knowledge societies*, Doctoral Thesis, Universität Wien, 2017

«It's interesting how, at the beginning, European firm companies were sceptical about ESOF, while big firms understood the need of making science more visible⁶³» says Professor Sundberg. Many companies have been sponsoring the event but the amount of money they are willing to invest in it remains negligible. Initial editions show a mixed range of funding firms from all over the world but, over time, ESOF has attracted more and more local sponsors, a possible indication of a weakening international resonance.

The Science to Business programme introduced at ESOF 2010 Turin to reduce barriers between industry and academia has not proved a success in terms of interest neither attendance. Dr Kitson-Pantano claims:

The main problem is that ESOF has not been able to talk to companies so far. I work for a big company now and I can tell you, what big companies crave for is to have access to researchers. ESOF should focus on this⁶⁴.

The number of firms attending ESOF corresponds to a very limited selection in the limitless European landscape of tech-based companies and startups⁶⁵. Despite being small, this number has fluctuated along the years: if only two private companies were featured among exhibitors in 2006 (all the others being NGOs and European institutions), 113 registered in 2016.

3.3.3 Inner scientific publics: science administrators, media, policy makers

Communicators, science journalists, media representative, professional science administrators and policy makers are a significant part of the ESOF attendees, not only from a numerical point of view. Dr Chelioti places them under one heading of “inner scientific publics”: professionals who position themselves outside the close expert circle, while operating within the inner circles of the scientific enterprise. They

⁶³ Full interview with Professor Sundberg in Appendix 2

⁶⁴ Full interview with Dr Kitson-Pantano in Appendix 2

⁶⁵ European Commission, *Startup Europe: over 4.5 million people working in 830,000 companies in 20 EU startup hubs*, October 2017

<http://startupeuropeclub.eu/over-4-5-million-people-working-in-830000-companies-in-20-eu-startup-hubs/>

act at the interface between science and society, constantly moving across them, raising awareness of the mutual influence these two realms exert on each other. In a way, they represent one of the clearest embodiment of the hybridisation that science is currently undergoing.

ESOF is not a purely science communication event, as instead depicted by the journal *Nature*⁶⁶ soon after the first edition in Stockholm. According to the paper, «many attendees complained of too many sessions on media and policy and too few on science». The point is that science communication is indeed one of the pillars ESOF is based on, but not the only one.

Differently from scientists, communicators and journalists have well understood all the potential benefits this event can have on their professional career, as they get the chance to pick up the latest news in the field, to interview experts and to extend their network⁶⁷. ESOF has strongly valued these actors from the start, trying to increase their attendance rate and therefore the visibility of the event on the media. This is the reason why press officers have a dedicated registration category at the conference, reduced fees and a strong support from the organizing team to ensure them the best working conditions, which includes media rooms, networking events and press tours.

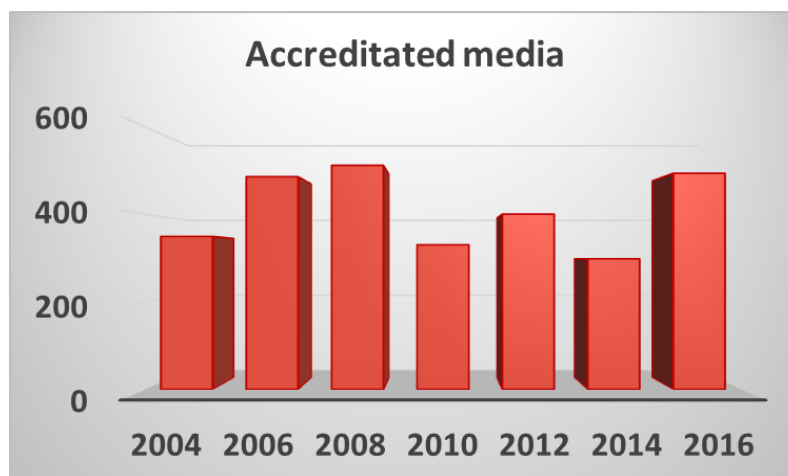


Figure 3.4 Number of accredited media attending ESOF.

⁶⁶ A. Abbott, *Organizers claim success for Stockholm science jamboree*, in «Nature», 2 September 2004

⁶⁷ M. Enserink, *Europe clones U.S. Science Festival*, in «Science» Vol. 305 pp. 1387, 2004

Besides science communication, policy is another topic to have been prominently featured in the conference programme. Modern politics is, in many respects, a *politics of technology* and ESOF can't avoid involving policy makers in the debate. Dr Chelioti believes:

There is now a strong necessity for Europe to think about how it values science and its policy makers, especially considered the international situation, with the US pulling back from science diplomacy and China so aggressive on the other side⁶⁸.

Differently from the US, where people have had a strong common political and cultural identity for a long time, Europe still needs to define its own. In this respect, science policy is giving an important contribution, trying to incorporate shared cultural values, and ESOF could be a valuable sounding board.

3.3.4 Knowledge brokers

Not only researchers and societal actors, moving at the interface between the public sphere and the scientific enterprise, find a space for exchange at ESOF. A new expert publics emerge, filling the gap between science and society: knowledge brokers⁶⁹. They are professionals who bring knowledge to the market and, ultimately, to society. Consultants, representatives from foundations, coaches and trainers, recruiters, technology transfer scouts: they earn their living from brokering knowledge, between academia, national and European research systems and other publics.

These new professions have become necessary in a more and more professionalized research enterprise. Today, knowledge brokers are increasingly participating in hybrid conferences like ESOF, as these are not spaces reserved for scientists and experts, but open fields offering new business opportunities. They

⁶⁸ Full interview with Dr Chelioti in Appendix 2

⁶⁹ E. Chelioti, *The EuroScience Open Forum: an experiment in constructing and performing European knowledge societies*, Doctoral Thesis, Universität Wien, 2017

don't have a dedicated registration category at the forum, so it's hard to quantify their presence over the years, but it's likely to be increasing.

3.3.5 General public: Science in the City Festival

The EuroScience Open Forum itself remains a meeting for all those science and technology professionals described in the previous chapters, from academics to media officers, from policy makers to consultants. This leaves out what science communication refers to as “general public”. Taken for granted that each individual owns different types/degrees of expertise, with “general public” we identify here society at large, encompassing people not necessarily belonging to the scientific enterprise. Despite most people regard ESOF as a popular event mainly aimed to not-experts, this wonderful multifaceted product has never pretended to be a science *festival*.

Society is addressed by outreach activities, in particular the Science in the City Festival, which remain a stand-alone entity in terms of contents, spaces and communication strategies. As regards the figures, the Festival follows the same general trend of ESOF, featuring a constant increase over time with two noteworthy exceptions (**Figure 3.5**): ESOF 2006 and ESOF 2010. The massive participation observed in 2006 in Munich can be explained by the concomitant *Wissenschaftssommer* festival for children and teachers hosted in the city. As for ESOF 2010 Turin, the final report only provide estimated figures which could have been overstated.

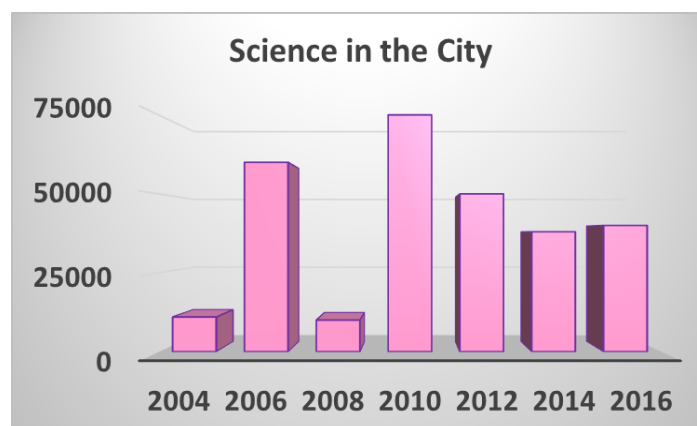


Figure 3.5 Overall number of participants at the Science in the City Festival.

3.4 Communication strategy

As described in the previous section, the EuroScience Open Forum addresses a whole set of actors and, for each of them, it needs to suitably decline its messages. A well defined communication strategy plays a crucial role for the success of such a multifaceted event like ESOF.

To get a feeling of how much effort has been put in this and to understand which targeted actions have been adopted, I rely on the final reports of past editions. The 2004 edition report has no dedicated section: a short paragraph only mentions the multimedia tools which had been used and the final overall media coverage. In 2006, a “Press and Marketing” chapter describing all the promotion activities realized before and during ESOF is introduced in the report. A long and detailed section dedicated to communication and media has been present ever since.

All the communication plans mention similar goals to achieve:

- To raise awareness of the upcoming event
- To promote the scientific programme (as previously mentioned, this has always been considered as the core of the entire event)
- To attract participants and potential delegates
- To create networks between institutions and stakeholders
- To maximise the media coverage
- To create a strong and coherent visual language
- To promote a positive view of the host city
- To promote science in the broadest meaning of human knowledge, encompassing both hard sciences and humanities

According to these objectives, they put forward the same primary target groups to reach, which can be partially identified with the publics of ESOF: scientists and academics, journalists, ministries of education, politicians, local institutions, teachers, private companies, opinion leaders, general public. For each of them, it was

necessary to «devise individual strategies to address their respective needs and expectations⁷⁰».

Interviews with stakeholders have highlighted that ESOF communication strategy has been mainly declined towards a local and European community, and only to a lesser extent to a national one. By addressing the host city/region (which accounts for the 10-30% of the total communication activities⁷¹), the aim is to portray its scientific identity, traditions and culture, thus conveying a local flavour to the Forum. At the European level, there is the clear aim to attract the interest of European institutions, companies and stakeholders and to ensure that ESOF comes across as an event of status.

To promote the event and to guarantee coverage on the media, each edition counted on a set of targeted actions ranging from the definition of a strong visual identity to the promotion at prior relevant events/conferences, from advertising in scientific magazines to viral marketing, from special social media campaigns to the production of printed materials (including magazines, flyers, brochures, banners, posters, institutional leaflets, postcards).

Multimedia tools deserve a separate discussion. They have proved very useful to reach a broader audience, but their role changed significantly over time. Adding up to advertising on local radios and TV, the first four ESOF editions mainly relied on newsletters, direct mailings and on the official website as preferential promotion channels. In 2010, the social media revolution takes hold, changing completely the communication landscape: during the first meetings, communication was very unidirectional, from ESOF to the outside, and there was a limited permeability across the conference walls. With social media this had changed: streaming videos, live tweets and live debates allow to share contents and opinions with the world. As a direct consequence, interaction and transportation of scientific contents, exchange on the role of science itself are boosted. A new dedicated section is featured in final reports, trying to quantify impact and fruition of these new sources of information. Official ESOF channels were opened and soon became the highest driver of ESOF website traffic.

⁷⁰ EuroScience, *ESOF 2006 Munich Final Report*, 2006

⁷¹ Full interview with Professor Sundberg in Appendix 2

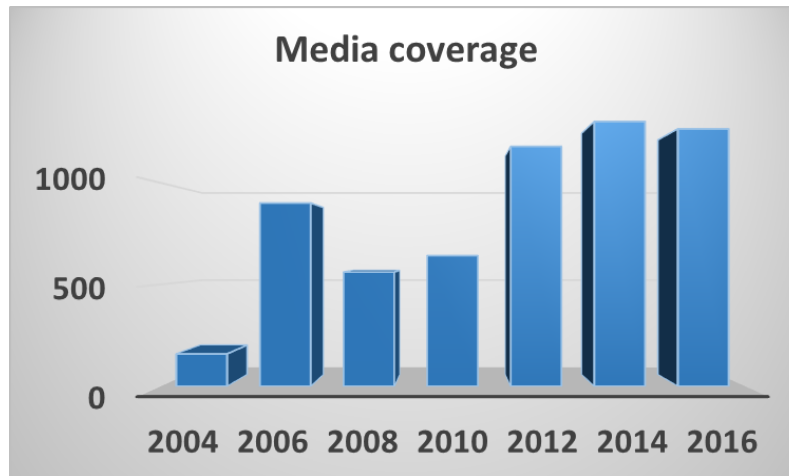


Figure 3.6 *Media coverage of the EuroScience Open Forum, as reported in final reports. The number for the 2004 edition only refers to articles featured in the international press shortly after the event.*

Twitter, Facebook and LinkedIn are the preferential channels adopted to cultivate an online community, to promote the event, provide useful updates and foster debate. At ESOF 2014 Copenhagen it was chosen not to use Facebook, as in Denmark this social network is considered for private use only and not for professional purposes. Coverage across all media (online, print publications, news agencies, radio and tv) has been closely monitored, both at the national and international level, showing an overall increase along the years, with a boost in the last three editions.

There is surely room for improvement, starting from defining new targeted strategies to reach specific publics, as senior scientists and industries.

3.5 The legacy

Each ESOF edition starts out surrounded by enormous expectations, good resolutions and sought outcomes. But what moral and practical legacies has ESOF left behind, both at a local and international level?

ESOF is the first, even if not the only one, large open arena in Europe able to gather different societal and scientific actors to discuss about science. This point, stressed

by all previous editions, is also mentioned as an expected legacy in Toulouse: «we want to emphasise the sharing of knowledge, culture, innovative approaches and perspectives with the Mediterranean Countries and Africa and to make of this ESOF a take-off platform of collaboration and exchanges of views with this part of the world⁷²». ESOF is not a scientific conference, it does not produce *new* scientific knowledge, as there is hardly any specialistic exchange within the Forum. As Dr Effrosyni Chelioti claims, it has rather provided «knowledge about knowledge⁷³», the awareness of the multiplicity of research and of the fact that science has changed and become an intrinsically social endeavour. By strengthening social awareness of the importance of science for European development and by fostering the debate about how science could be put into use for economic growth, ESOF has contributed to «build a scientific Europe» which might be considered the only collective outcome of the event.

ESOF undoubtedly brings science closer to society. By portraying it on the media, making it visible in the streets, changing the entire look of the city through the Festival, it plays a role to modify the widespread public perception of science as a separate, unattractive and closed-off world.

On the other side, within the academic realm, ESOF has affected scientists' perception about their role within society and within their community, as Professor Gail Cardew from the Royal Society reveals:

More and more scientists are encouraged to think much more broadly about how their work fits into policy and society and not just how it fits within the specialism of their field. That's what ESOF is meant to do⁷⁴.

Researchers from all disciplines attending ESOF are inspired to take their research in new directions. More than “disciplinary clusters”, a number of informal networks among scientists, mostly reinforcing collaborations between local universities, spontaneously originate during the event.

⁷² EuroScience, *ESOF 2018 Toulouse candidature document*, 2014

⁷³ E. Chelioti, *The EuroScience Open Forum: an experiment in constructing and performing European knowledge societies*, Doctoral Thesis, Universität Wien, 2017

⁷⁴ Full interview with Professor Cardew in Appendix 2

At the local level, ESOF does not guarantee that host cities inherit a long lasting and internationally renowned status of “city of science”, but it often enables them to strengthen the ties to the local government, to sustain engagement with national organizations, to develop new collaborations between local scientific institutions, and to highlight specific priorities and needs of the region: in Manchester, where there was a strong interest in science education, ESOF brought together a number of educators and outreach professionals. The partnership they established on that occasion resulted in a set of science education activities in the city, still running today.

Science and business tourism have also benefited from ESOF, through promotion of *science walks* and *open labs* or giving support for the growth of existing festivals⁷⁵.

In some cases, ESOF has led to the establishment of new permanent events, periodically organized since: it's the case of the *Festival of Curiosity*, Dublin's international festival of science, arts, design and technology, designed as the official legacy project of ESOF 2012 Dublin and taking place every year from 2013. Another example is the Great Science Share, a programme of events become annual and aimed to inspire young people into science and engineering in Manchester.

As for science communication, the forum offers journalists and communicators a wide platform where to meet all actors playing within the scientific realm, and it nurtures and expands the contacts established within the media community.

3.6 Looking forward: new ways to improve the format

Taking for granted that «ESOF would no longer exist if it was not fulfilling an existing and enduring need of European society⁷⁶», in this paragraph I would like to point out few shortcomings the format has shown over the years, and to put forward some suggestions for improvement.

At the moment, there is no coordination between ESOF editions, as there are completely new local teams taking over at each event, new funding institutions, new

⁷⁵ EuroScience, *ESOF 2016 Manchester Final Report*, 2016

⁷⁶ Full interview with Dr Chelioti in Appendix 2

partners. A proper knowledge transfer from one organizing team to the other would be vitally important, most of all for ESOF to be valued and recognized as a recurring event. To promote continuity between ESOF editions implies the building up of centralized resources, a corporate identity, a memory for rules and procedures, a repository with figures of merit, documents and reports tracking its history, shared databases listing all participants and infrastructures involved in previous events. A first attempt was made in 2012, when *ESOF hub* was created within the EuroScience headquarters in Strasbourg, thanks to the partnership between five European foundations: Compagnia di San Paolo, Fondazione Cariplo, Riksbankens Jubileumsfond, Robert Bosch Stiftung GmbH, Stifterverband für die Deutsche Wissenschaft and EuroScience. Unfortunately, it only survived few years.

A systematic evaluation after each event could also represent a key tool for future improvement, other than being a vast source of information. EuroScience has never put in place such an assessment, the main reason being the excessive costs required, as Dr Raphaela Kitson-Pantano explains: «EuroScience would be the one interested in doing an evaluation but it doesn't have money for this. The host cities have no interest and, in addition, they would have to pay for it⁷⁷». Also, an assessment of these proportions would necessitate a number of scientists and researchers to be carried out professionally: it is a complex operation that requires shared criteria and common quality standards for different countries. To date, only few isolated attempts have been made in this direction: **(1)** the ESOF 2010 booth at ESOF 2008 in Barcelona invited participants to take part in a survey with the purpose of knowing their expectations for the upcoming ESOF edition. **(2)** A massive survey, consisting of about twenty general questions about ESOF, was sent in 2012 to all participants of previous editions. **(3)** At ESOF 2012 Dublin, individual qualitative interviews about half an hour long were conducted with participants: all the collected material served as a basis for the local committee to make recommendations to EuroScience for the future.

A last aspect to be considered is the possibility to make ESOF a sort of think tank able to produce thoughts and recommendations for policy makers, scientists and

⁷⁷ Full interview with Dr Kitson-Pantano in Appendix 2

stakeholders in between the meetings. Indeed, this will be an additional effort for EuroScience, requiring motivated people and money to invest.

4. Towards ESOF 2020 Trieste

4.1 Promoting science as inclusion

Today, Europe faces important societal and economic challenges. The not yet overcome economic crisis has raised inequality, social exclusion and unemployment, especially among the youth, with rates up to 20%. Research and innovation could be effective tools to address these challenges, to cope with public fears and concerns, to strengthen relevant EU policies, to improve the quality of life, to foster economic recovery, integration, social progress and sustainable long-term growth across the continent. As stressed by the Horizon 2020 Work Programme 2016-2017, «an inclusive, innovative and reflective society is a prerequisite for true European integration and development⁷⁸». This is particularly true in Eastern and Central European countries, where the economic, political and societal situation is even more dramatic, and where a strengthened connection between science and society needs to be re-established.

4.1.1 Science in Eastern European countries: a brief overview

Beyond definitions and institutional claims, Europe is still far from being an effective “union”, starting from an economic point of view: among the thirteen states⁷⁹ that have become official members of the European Union from 2004, for example, only seven have entered the Eurozone too (**Figure 4.1**). Social welfare, productivity and competitiveness on the global market vary dramatically among the 28 current member states, and disparities become even stronger in the EU13⁸⁰. Mainly located in Central and Eastern Europe, these EU’s newer entrants are still the poorest

⁷⁸ European Commission, Horizon 2020 Work Programme 2016-2017, Europe in a changing world: inclusive, innovative and reflective societies, European Commission Decision C(2017)2468, 24 April 2017

⁷⁹ EU Member states by year of entry from 2004 to date are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia (2004); Bulgaria and Romania (2007); Croatia (2013).

⁸⁰ The EU’s newer entrants (the 13 countries which have joined since 2004—Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia

regions of the continent. We observe a two-tier Europe, roughly speaking one east and one west of the former Iron Curtain. The same also applies to the research and innovation sectors, even if things have slowly started to change over the past twenty years. All the Soviet-controlled countries of the former Eastern Bloc valued science, although the full control exerted by local governments on funding and research priorities were leaving researchers academically isolated, unable to compete with the rest of the world.



Figure 4.1 Schematic of the European Union and the Eurozone, as of 2017.
Credits: Stratfor 2017⁸¹

After the fall of the Berlin wall, thirty years ago, these countries those countries started moving onto the international stage, even if following different trajectories: some have increased the private and public investment in science straight away, «some ended obsolete and no-longer-sustainable research lines and opened up more promising ones. Others set science aside and focused on rebuilding governments and shattered economies⁸²». Many researchers decided to establish

⁸¹ A. Bosoni, *Central and Eastern Europe's crisis convergence*, Stratfor, September 2017

⁸² E. Pain and K. Travis, "After the Fall of the Wall: Science Careers in Eastern Europe", in *Science: Issues and Perspectives, Job Market, Advice*, 6 November 2009

their career abroad, while others stayed to rebuild internationally renowned research systems, often relying almost exclusively on foreign aids. Over the past decade, Central and Eastern European countries have largely benefited from the financial support of the EU aimed at narrowing economic and social disparities. Between 2007 and 2013, for example, Brussels invested 170 billion euros, of which 20 billions devoted to science and innovation^{83,84}, in cohesion and regional development in the new member states.

Nowadays, science has generally become more transnational both in the West and the East, and a freer circulation of people, knowledge and ideas has undoubtedly made Eastern science more competitive. But EU13 countries are still living a transition phase, and the overall situation remains highly inhomogeneous: on the one hand, for example, Poland has the highest publication rate among Eastern European countries, it undergoes a sharp economic growth and constantly enlarges its research base; on the other hand, Hungary has attracted a high number of ERC grants in the past ten years by taking advantage of its academic strengths during the communist era, but it's now putting that legacy at risk because of a lack of investments; on the other, Slovenia has channeled significant funds to science, almost matching Western European spending.

International collaborations have been also fostered through established European infrastructures and new transnational research consortia. Some examples are the Central European Research Infrastructure Consortium (CERIC) founded in 2014 and featuring Austria, Croatia, Czech Republic, Hungary, Italy, Poland, Romania, Serbia and Slovenia among its founding members. The European Multidisciplinary Seafloor and water column Observatory (EMSO) has been funded in 2016, among others, by Romania. New members to join the European Space Agency (ESA) have been Czech Republic (2008), Romania (2011), Poland (2012), Estonia (2015) and Hungary (2015); Slovenia is an associate member, while Bulgaria, Lithuania and Slovakia have signed cooperation agreements with ESA. Poland, Hungary, Czech

⁸³ A. Abbott and Q. Schiermeier, *After the Berlin wall: Central Europe up close*, in «Nature» Vol. 515, 5 November 2014

⁸⁴ European Commission, *Cohesion Policy 2007-2013: Research and Innovation*, DG REGIO SFC2007, 2007
http://ec.europa.eu/regional_policy/sources/activity/statistics/2007_rd.pdf

Republic, Slovakia, Bulgaria and Romania also became member states of the European Organization for Nuclear Research (CERN) between 1991 and 2016.

For a true extended European Research Area including Central and Eastern European countries to be established, though, substantial efforts still need to be done. First of all, imbalances in terms of investments and scientific production should be evened out: if Germany and Northern European countries invests today over 600 euros per habitant in higher education, the expenditure is less than 200 euros (on average) in the East⁸⁵. Similar disparities emerge when looking at the total amount of investments in R&D (5.8% GDP in Germany, less than 1.0% in the East), the number of researchers, papers published or patents filed⁸⁶. A stronger public perception of science in Central and Eastern European countries is another key element to be considered: «until the link between research and economic growth will not be deeply understood by citizens nor advertised by politicians, true innovation will not happen⁸⁷» claims Professor Milena Žic Fuchs depicting the situation in Croatia, her home-country.

4.1.2 ESOF: looking East

Since the beginning, ESOF has considered within its mission to get more countries from the Eastern and Central Europe involved in the forum, both in terms of attendance and contributions to the final programme. In fact, such an opening would be crucial to foster European cohesion and identity and to strengthen the European Research Area, now dramatically falling apart.

Unfortunately, there has always been an imbalanced presence of participants and speakers coming from European States in favor of Western Countries. At ESOF 2004 Stockholm, for example, 185 participants were from Germany only⁸⁸, whereas a total of 102 came from Bulgaria, Croatia, Czech Republic, Macedonia, Greece, Hungary, Moldova, Romania, Slovakia, Slovenia, Ukraine and Yugoslavia. The

⁸⁵ P. Greco, "L'Europa a quattro velocità", *Scienza in Rete*, 20 October 2014

⁸⁶ Ibidem

⁸⁷ Full interview with Professor Milena Žic Fuchs in Appendix 2

⁸⁸ At ESOF 2004 Stockholm 655 participants were from Sweden only, 139 from the UK, 80 from France.

situation hasn't changed significantly thereafter: in the last two forums in Copenhagen and Manchester, delegates from Eastern European countries only counted for 12% of total attendance, showing the ineffectiveness of the adopted strategies, whether applied.

All ESOF final reports mention the limited attendance from Eastern and Central Europe as a shortcoming of the forum to be strongly addressed. The imbalance concerns both participants and speakers, the main reasons being high subscription fees, travelling costs⁸⁹, and restrictions in terms of applications, as Dr Kitson-Pantano claims:

these countries have always been very interested in the event, but the requirements and expectations of the selection committee were not prepared to shift. You need to take into account that the ecosystem is different there, the funding system, the educational system are different. You need to change evaluation criteria⁹⁰.

If not to change criteria, other potential solutions could be to support these countries in drafting their applications and to provide them with a well-established network of partners.

In the past two or three editions EuroScience has even tried to bring ESOF in a Eastern European city by strengthening its contacts with local institutions, hoping to overcome the lack of attendance from these countries. Despite the initial widespread enthusiasm, though, the political and economic instability of those regions represented a too great risk for EuroScience and for the host country itself to undertake the organization of such a big event. The nomination of Trieste, a city right at the border between Eastern and Western Europe, as ESOF host in 2020 is another clear signal in this direction: it reveals that geographical homogeneity and inclusion are still among EuroScience top priorities.

⁸⁹ At ESOF 2006 Munich, 39 dedicated travel grants were introduced to overcome the lack of attendants from from Central and Eastern Europe and this seemed to have a small, yet clear, effect.

⁹⁰ Full interview with Dr Kitson-Pantano in Appendix 2

4.2 ESOF 2020 Trieste: vision and goals

4.2.1 Trieste, a scientific hub

Trieste is a multi-ethnic city located right on the border of the EU13 countries, between Italy and Slovenia. Its rich history dates back to the ancient Roman Empire. Thanks to its geographical location and geomorphologic structure, Trieste soon became the natural port providing access to the Mediterranean to Central and Eastern Europe. During the 17th century, with the port getting more and more international and bringing wealth and prosperity to the city, Trieste experienced a huge expansion in economic, cultural and demographic terms. In the 19th century, the city invested huge capitals in cutting-edge technological innovation, especially in the field of transports: new scientific institutions such as the Astronomical Observatory, the Zoological Station and Nautical schools were established for improving modern navigation tools and for deepening the knowledge of the sea from a physical and biological point of view.

The predisposition of Trieste as a place of innovation and scientific research was already glaring back then, but its proper vocation as “City of Science” only came in the early 1960s. In 1964 the Nobel Laureate Abdus Salam and the Trieste-born physicist Paolo Budinich established the International Centre for Theoretical Physics (ICTP), fostering scientific collaborations from all over the world. In less than fifty years, a number of other institutions and research centres came to life within the city: the Academy of Sciences for the Developing World (TWAS), the International Centre for Genetic Engineering and Biotechnology (ICGEB), the International School for Advanced Studies (SISSA), the ELETTRA light machine synchrotron, the public research centre Area Science Park, the Science Centre “Immaginario Scientifico” (**Figure 4.2**).

Nowadays, Trieste is a city with a concentration of research workers among the highest in the world. The “Trieste System” attracts scientists and students from all over the world and it’s internationally renowned for its research centres, highly qualified universities, scientific infrastructures, but also for its high-tech industries, technology clusters and innovative start-ups.



Figure 4.2 *The Trieste System, with all its main scientific institutions.*

The city has developed into an important hub for science, business and society interactions in a wide geographical area including the North-East of Italy and, more broadly, Central Eastern Europe. According to Professor Stefano Fantoni, this was a key element «to make Trieste one of the best possible candidates to host the EuroScience Open Forum in 2020⁹¹».

4.2.2 The candidature and the motto

One of the key actors giving a substantial contribution to the success of the “Trieste System” is the Trieste International Foundation for scientific progress and freedom (FIT), established in the 80s to promote and encourage the spread of a scientific culture as a tool for global development. In 2017 FIT, together with the Studio Ferrante Engineering Trieste specialized in innovation building, officially promoted Trieste’s candidature to be the European City of Science in 2020. They strongly focused the candidature dossier on the connection of Trieste with Eastern and Central European countries, which was a key guideline of the EuroScience call itself. For the first time in its history, the largest European Open Forum on Science opens up outside the national borders of the hosting city.

⁹¹ Full interview with Professor Fantoni in Appendix 2

With this prospect, the chosen motto is “*Freedom for Science, Science for Freedom*”: it suggests that «science, democracy and freedom are strictly interrelated, and developing these links is of continuing benefit for humankind⁹²». The two key concepts highlighted by the motto should be discussed separately: *freedom for science* points out that only a free and responsible practice of science can ensure scientific advancement and contribute to human well-being. The word *freedom*, however, has not to be read as “free from responsibilities”. On the contrary, the scientific community is called upon to collaborate more with all components of society and to devise new forms of participative democracy to tackle major global challenges. The aim is to define and promote a European approach to sustainable development. A true advancement of the European Research Area cannot disregard all those values science shares with democracy, such as honesty, openness, tolerance. *Freedom for science* also implies a clear and explicit effort to ensure fundamental rights to scientific professionals: from the recognition of the researcher profession to the achievement of equal opportunities and adequate working conditions, from giving value to mobility to reaffirming intellectual property rights. According to Stefano Fantoni, the concept of *freedom* has also to be related to the way the current scientific system works: «I strongly support an idea of European science: a science *free from the system*, not strictly linked to careers, number of citations or immediate applications. Science for fun, for gathering knowledge. I think this is still a prerogative of European feeling and mindset, more than American⁹³». *Science for freedom*, on the other hand, draws attention to the dramatic impact that science and innovation have on our lives: they support economic and social development, contribute to alleviate poverty, create jobs, reduce inequalities and enhance health, but they also have a crucial role in «building a more peaceful and collaborative international context⁹⁴». From this perspective, ESOF 2020 Trieste is aiming to enhance actions in favour of a stronger Science Diplomacy at the European and international level.

⁹² EuroScience, *ESOF 2020 Trieste candidature document*, 2017

⁹³ Full interview with Professor Fantoni in Appendix 2

⁹⁴ EuroScience, *ESOF 2020 Trieste candidature document*, 2017

The 11th of July 2017, EuroScience and the ESOF Supervisory Board announced that Trieste had been selected to host ESOF from 4 to 10 July 2020, with the hope it will «strengthen links with Central and Eastern European scientists, businesses, politicians and citizens⁹⁵».

4.2.3 Expected legacy

ESOF 2020 Trieste is expected to have a long-lasting and multi-level legacy for the city, the surrounding region and, more broadly, for Europe.

First of all, it will contribute to create an extended and solid scientific network in Central and Eastern Europe, with the Trieste System as its natural reference point. This will strengthen the scientific role/identity of the city both at a national and international level, but it will also foster inclusion and integration of CEE countries and constitute a strong facilitator in the Adriatic Danube macro-region.

Another permanent legacy for Trieste will be a brand new science centre established in the underutilised port area “Porto Vecchio”, a beautiful example of industrial archeology, with the potential to attract visitors from all over Europe.

Among the various forms of legacy he has imagined for the city, Stefano Fantoni also mentions the Trieste Encounters on Science and Innovation (TESI, see paragraph 4.3.1), a group recently created to embody ESOF vision and to lay the foundations for the ESOF 2020 Trieste project. In his opinion, this group «should continue to exist after the 2020, as a laboratory of ideas where science, citizens, policy makers talk to each other and meet periodically and really make Porto Vecchio a *Porto of ideas*⁹⁶».

In addition, in an historic moment of uncertainty for the future of Europe, when its identity is undermined by a widespread political and social crisis, with migration flows inadequately addressed and raising more and more concern among people, science could become a point of reference to provide possible solutions: a strong scientific network could be a valid instrument to accelerate the European integration, helping to reduce the gap between the Central and Eastern European countries and the rest

⁹⁵ EuroScience, “EuroScience selects Trieste to organize ESOF 2020 and Leiden/The Hague for ESOF 2022” Press release, 11 July 2017

⁹⁶ Full interview with Professor Fantoni in Appendix 2

of the continent; a more inclusive idea of science can be fostered by getting more scientists involved in ESOF, where they can take part to open discussions and public debates, being exposed to questions directly coming from society and directly promoting the impact of their research; finally, European citizens could discover in science some shared values on which to define a new common identity crossing national and cultural borders, thus defining the “scientific Europe” of the future.

4.3 Communication strategy

Soon after the nomination of Trieste as host city for ESOF 2020, a complex local organizational system has been activated, in which communication plays an undoubted key role: a two-year strategy has been established to promote the event and to ensure widespread and effective media coverage both at a national and international level. A number of actions have been carefully selected to maximise the impact on the target audiences identified for both the 2020 event and the activities anticipating it, including teachers, students, families, elderly people, linguistic minorities, policy makers, entrepreneurs, international scientists, media, influencers. In the next paragraphs I will analyse in greater detail the actors that have been involved in this process, as well as the innovative tools adopted by the local organizing team in Trieste.

4.3.1 proESOF: an innovative approach

Past ESOF editions have very much focused their communication strategy on the forum itself, with the primary purpose of maximising the number of attendees and amplifying the resonance on the media before and during the event. Trieste, the city selected to host ESOF in 2020, has adopted a different approach from the very start. FIT, which promoted the candidature of the Trieste, introduced *proESOF* as a new concept in the usual EuroScience format: ideated as a necessary networking tool to reach and involve all targeted audiences (especially from the North-East of Italy,

Central-Eastern European countries and the Balkans), proESOF promotes a set of regional and international activities and events to anticipate and accompany the development of ESOF 2020 Trieste, always maintaining the general vision and mission of the Forum. On the one hand, the programme was conceived to collect ideas and provide support for the development of initiatives that will take place from now to till 2020. On the other hand, proESOF aims to build a sense of common identity and ownership within the field of science, to raise awareness about ESOF among different publics⁹⁷, to enhance dissemination, education and training before, during and after the 2020 event, but also to establish new platforms for implementing research infrastructures in CEE countries, to foster cooperation among European academies and science associations and, ultimately, to contribute to European integration.

To carry out this ambitious project, FIT established an operative tool named Trieste Encounters on Science and Innovation (TESI). TESI consists of seven sub-committees, each with a specific goal:

1. **Science to science - hard sciences:** to present and highlight current and future path-breaking research in physics, maths and engineering.
2. **Science to science - medical sciences:** to present and highlight life sciences, as well as current and future path-breaking medical research.
3. **Science to science - humanities:** to highlight the latest studies and trends in social sciences and humanities.
4. **Science to business:** to provide a unique platform to exchange ideas and good practices on research-driven business models, public-private partnerships, technological innovation, future careers and jobs opportunities.
5. **Science to policy:** to foster a reliable and evidence-based policy-making for the benefit of the society as a whole, to spark open discussions about scientific ethics and science diplomacy.

⁹⁷ «Also those who would normally be unlikely to join physically the main event in Trieste but who would gain in awareness, competences, curiosity and commitment» FIT, EuroScience Open Forum 2020 Candidature document: Trieste, 2017.

6. **Science to citizens:** to build a sense of identity and ownership within the field of science among the general public , to promote the idea of science as fundamental to problem solving, to create a common scientific citizenship.
7. **Science to communicators:** to build a solid network of science communicators active in different fields (journalism, events organizing, publishing, corporate communication) across Europe.

Each sub-committee is composed of 10-15 experts in different science-related fields, supported by external referees. All together, the fourteen coordinators of the sub-committees form the TESI Local Programme Committee, in charge of promoting and guiding the development of the programme for the 2018 - 2020 events. Individuals and organizations from the areas of interest are invited to become part of proESOF by submitting projects and ideas through dedicated quarterly calls, evaluated by TESI sub-committees. Proposals can be submitted in one of the three following areas: (1) **events to be realized before July 2020** and targeting various audiences from scientific experts to the general public; (2) **Science in the City Festival**, for activities targeting the general public that will take place in Trieste during the three-week long festival in July 2020. Initiatives can include science shows, workshops, exhibitions, concerts, theatre plays and much more; (3) **ESOF 2020 Trieste**, for projects to be carried out during the Forum in 2020. In this case, all draft proposals developed with the support of TESI would need to be submitted to the official call for ESOF 2020 Trieste to be launched in January 2019.

The call is not intended as a tool to simply reject poor or inappropriate projects; it rather aims to coordinate all the submitted ideas to define a consistent and multifaceted programme of events, and to help applicants implement, develop and finally realize their initiatives. Even if TESI doesn't provide monetary fundings of any kind, it offers applicants an established network, a full logistic and communication management and support, as well as a strong visual identity.

4.3.2 Experimental section: building a communication plan

This last section is the result of a more experimental approach: drawing on my collaboration with the TESI local committee, I wish to provide here a full picture of the preparation and implementation process of the final proESOF communication plan 2018, which I have personally contributed to draft.

The TESI local committee started to define the *proESOF communication strategy* in September 2017, soon after the election of Trieste as European City of Science 2020. The overall strategy follows three main guidelines: (1) to promote the “ESOF 2020 Trieste” brand as a certificate of scientific excellence, entrepreneurial opportunity and inclusion, to foster free circulation of knowledge and ideas and contribute to European integration; (2) to increase awareness that all the regions targeted by ESOF 2020 Trieste can provide an unprecedented contribution to the future of a European knowledge society, starting from their participation in proESOF activities; (3) to define a new identity for Trieste and consolidate its role as “European city of science” and a cultural reference point for Central and Eastern Europe even after 2020. These guidelines have been declined in a set of key objectives for the current year 2018:

- to value and promote the ESOF 2020 Trieste brand and all the organizational tools put forward locally with this end, in particular the TESI committees and proESOF;
- to unambiguously define proESOF within the local community, so that it can remain a well-known and recognizable brand of activities even after 2020;
- to activate an effective communication strategy that clarifies the specific roles and relationships between ESOF and proESOF. Such a strategy needs to remain separate from the official ESOF one, thus allowing to manage the two communication channels separately, but in synergy with each other;
- to promote the crucial role of knowledge in future societies, economies and cultures of the Central-Eastern European area;

- to design and spread the visual identity of ESOF 2020 Trieste;
- to consolidate existing networks of science centres, journalists, entrepreneurs, institutions, and to develop new ones.

To achieve these goals, the local team in Trieste has put in place a set of tools and coordinated actions (**Figure 4.3**).

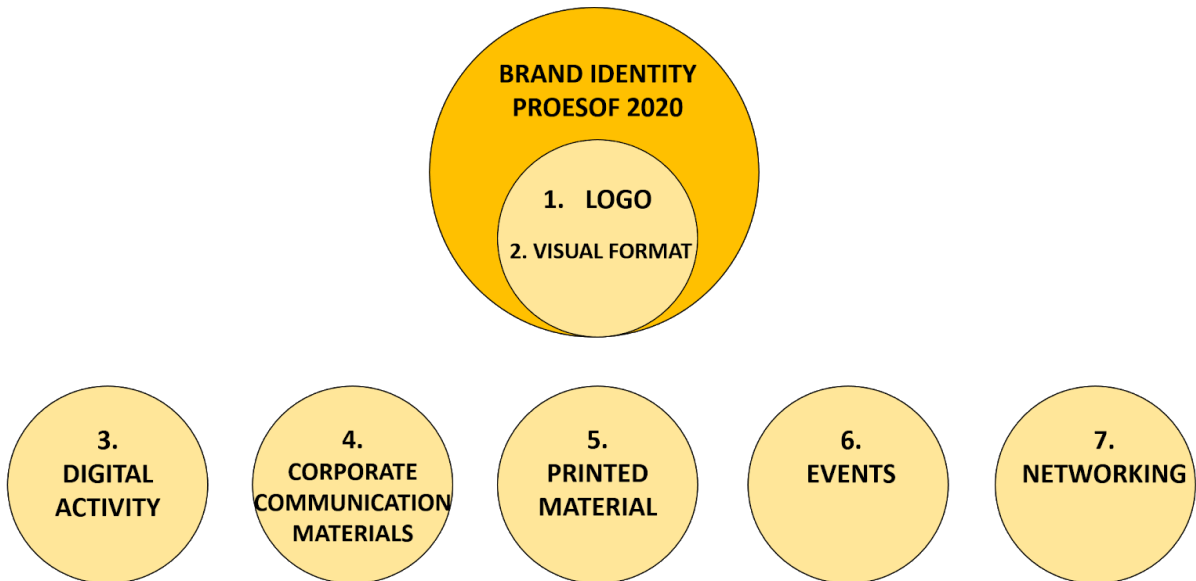


Figure 4.3 Coordinated actions defining the 2018 proESOF communication strategy.

A first imperative point was the definition of a strong brand identity, which implied the study of a logo (**Figure 4.4**), together with a homogeneous and coherent visual format reflecting the identity of the proESOF project. Other key aspects were the production of institutional and printed materials, attendance to relevant events in the area of interest for ESOF 2020 Trieste and an extended networking activity to put the basis for long lasting collaborations, all accompanied by a targeted and effective digital activity.



Figure 4.4 Official logos of EuroScience (left), ESOF 2020 Trieste (centre) and proESOF 2020 Trieste (right).

Targets identified by the communication activity include the broad and segmented *science audience*, as defined in the candidature document Trieste has submitted:

Generally speaking the target considered will follow the most recent segmentation of the “science audiences”, as the traditional social-demographic models are obsolete. Sociological research demonstrated that the science audience is not a physical entity to be reached with communication activities but it is a space that gets filled according to the different techno-scientific subject matter (...). These are problem-oriented audiences which have a political say and can contribute to build scientific and technological futures⁹⁸.

All undertaken actions are summarized in **Figure 4.5**. Each of them can be ascribed to one of the following categories: permanent activities, promotional events and networking activities. Permanent activities include the traditional press office ones, together with the definition of a strategic digital activity and the establishment of relations with international and national press agencies (especially with coverage in Central-Eastern Europe), media (newspapers, magazines, radio and television) and academic institutions.

⁹⁸ EuroScience, *ESOF 2020 Trieste candidature document*, 2017

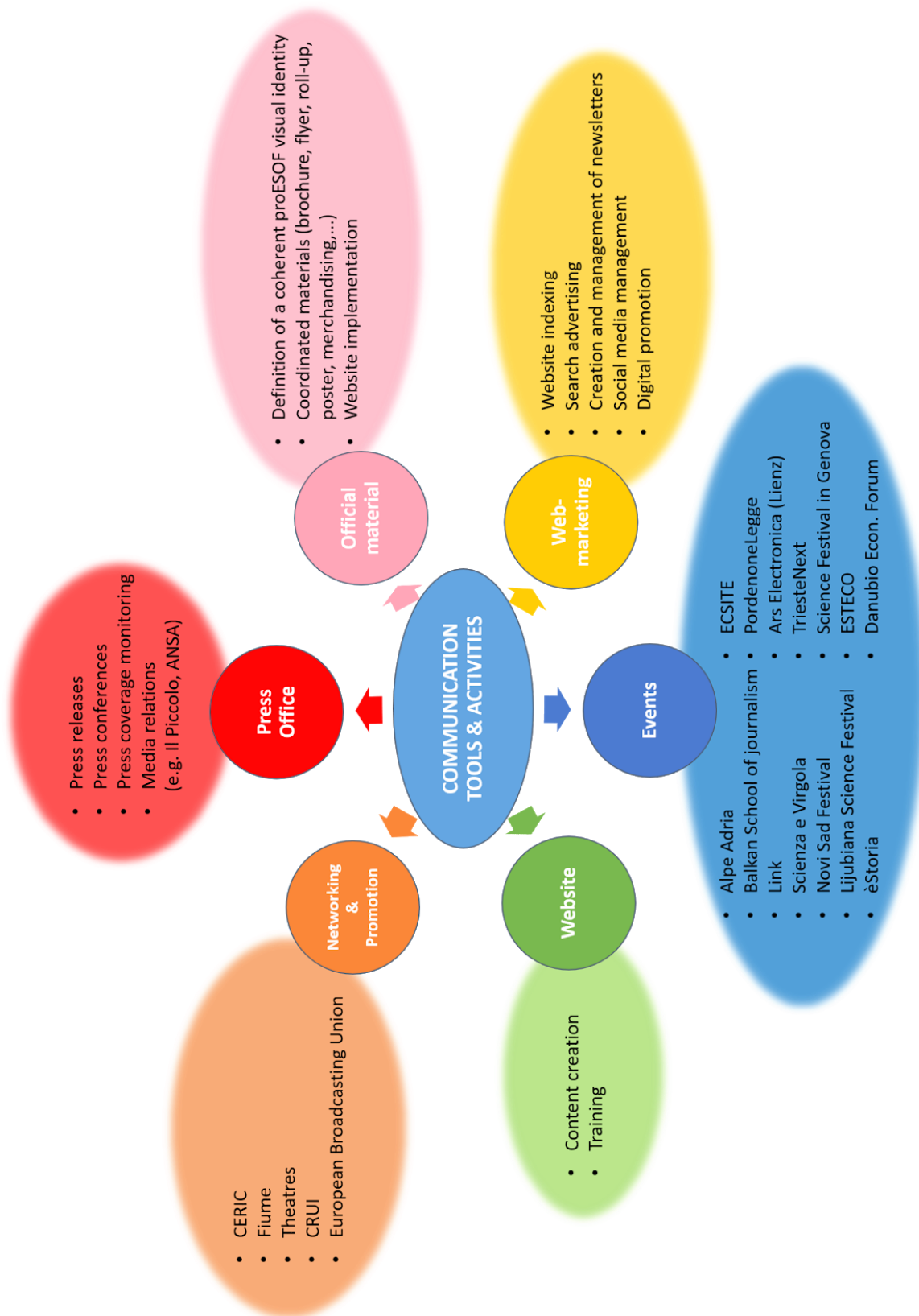


Figure 4.5 Set of tools and activities featured in the 2018 proESOF communication plan.

The 2018 proESOF communication plan also includes a preliminary gantt chart for all scheduled activities (*Appendix 3*) and a SWOT (strengths, weaknesses, opportunities and threats) analysis of the overall project, summarized in **Table 4.1**.

Strengths	Weaknesses
<ul style="list-style-type: none"> ● Involvement of all scientific institutes in Trieste ● Science communication expertise ● Established connections with local and national media ● Multidisciplinary coverage 	<ul style="list-style-type: none"> ● Weak geographical integration between institutes ● Scepticism for a scientific culture ● Lack of resources ● Weak connections between academia and industry
Opportunities	Threats
<ul style="list-style-type: none"> ● Definition of common research and innovation programmes ● New innovation policies ● Establishment of an open dialogue between science and society ● Creation of jobs opportunities ● Establishment of a new synergy between citizens, researchers, entrepreneurs and policy makers 	<ul style="list-style-type: none"> ● Bureaucracy ● Language barriers ● Limited response to the proESOF call for proposals ● Low involvement of local institutions

Table 4.1 SWOT analysis of the proESOF communication plan

Based on an accurate comparison with previous ESOFs, I claim that networking and promotion activities represent the most innovative and noteworthy features of the proESOF communication plan 2018. No edition before has dedicated such a strong, forward-looking effort in building a long-lasting network of collaborations and reaching targeted audiences and interested parties. Even when promotional activities have been organized (in Turin, for example, where a special “Towards ESOF 2010” programme was organized to reach as many schools as possible), they were limited in time and focused on local communities only: by contrast, proESOF is striving to establish a wide-ranging programme with a transnational European vision.

5. Conclusions

This thesis has investigated the complex ecosystem of science communication through the lens of the EuroScience Open Forum.

The social and cultural background from which ESOF emerged has been analysed, as well as its evolution over the first seven editions, from 2004 to 2016: the chosen topics, the formats adopted, the communication strategy, and the target public have been identified and discussed for each edition. The second half of this work is devoted to the description of the candidature and the vision of the future ESOF 2020 Trieste: starting from the focus given to the inclusion of Central and Eastern European countries which requires a targeted communication strategy, the identity of Trieste as City of Science is discussed, as well as its potential role as reference point for science in Eastern Europe, and the expected legacy of the 2020 event.

Within such a multifaceted event as ESOF is, an inextricably linked process of co-production concerning both science and society at the European level takes place. As Helga Nowotny, Chair of the ESOF 2010 Programme Committee, has declared: «science is an intrinsically social and cultural activity⁹⁹», meaning that both science and society are constantly re-thinking and re-shaping each other. All the ambitious tasks that contemporary science communication is asked to fulfil are well represented within the context of ESOF. First, the forum exemplifies very well that science communication can't be reduced to a process involving individuals transferring knowledge: it rather engages groups of people and professionals, often belonging to both social and scientific realms, who try to meet specific needs by discussing important questions (What does *knowledge* mean to us? What is Europe?), defining individual roles, adjusting boundaries and even incurring in tensions and contrasts. Each edition has somehow attempted to fill the boundary space between the social and the scientific realm, mixing inner actors, outer actors and brokers, somewhere in between.

⁹⁹ EuroScience, *ESOF 2010 Turin Final Report*, 2010

Secondly, ESOF manages to accommodate various levels of communication, all emerging through its communication strategies:

- to convey a new picture of science: from a pure celebration of it, new concepts such as inclusion and knowledge co-production come into play, with science policy now starting to play a major role within the programme of the event.
- To transmit moral, cultural and social values as participation, openness, freedom, honesty, collaboration.
- To contribute to integration and to the definition of a social identity (at a European level).
- To promote scientific tourism and to value the scientific-self of the host city (at a more local level). This, unfortunately, has never translated so far in permanent legacies for the cities, the only legacy being informal networks and career advices/support for younger researchers.

Overall, ESOF emerges as an interesting product of science communication, reflecting the complex relations between all the multiple actors involved in the process of knowledge production. This open arena keeps fostering open discussion about topical issues of our society and despite there is still much room for improvement, especially with regard to the involvement of senior scientists, women and CEE countries, and the engagement of the industrial sector, the concept behind ESOF is certainly important to define a future scientific European Union.

Appendix 1 - Content analysis grids

In the following pages I present the content analysis grids I have created and filled out for this study. Each ESOF edition is summarized in two separate grids: one gathers general information about the event, and one is specifically devoted to its communication strategy. All data have been extracted from official EuroScience reports.

A1. ESOF 2004 Stockholm: the event

When and Where	25-28 August 2004, Stockholm
Logo	-
Motto	-
Key messages	<p>ESOF is a new context for presenting research, for debate and dialogue not possible elsewhere on the possibilities and limits of research. For the first time in Europe many different disciplines come together to put specific research in a broader context. All research areas will be represented. ESOF will make cross border discussions possible. ESOF is an independent arena and non-profit project, it will gain a high level of attention among the media, politics and society. ESOF encompasses all research areas, differently from traditional scientific conferences.</p> <p>The initiative to ESOF2004 was taken by Euroscience to create a platform where different research bodies together with industry, policymakers and others could create dialogue and discussion around important issues for the future and for Europe.</p> <p>It will discuss the role of research in society and give insight into the frontline of today's research. It will empower the individual to see the needs and benefits of science and research in society.</p> <p>The aim was to include as many as possible of research bodies and academia from as many countries as possible.</p> <p>What problem can ESOF solve? Why should speakers attend ESOF? Speakers need a well attended arena with high level exposure for presenting their research. They are also dependent upon the society's acceptance and understanding of the importance of conducting their research.</p>


Participants	<p>1810 participants, 68 countries, 349 journalists, over 11000 participants at public events, 39 exhibitors, 28 partners and one sponsor.</p> <p>Among 1810 participants: Bulgaria (4), Croatia (3), Czech Republic (18), Macedonia (1), Greece (4), Hungary (15), Moldavia (5), Romania (21), Slovakia (8), Slovenia (6), Ukraine (12), Yugoslavia (5) vs 139 UK, 41 Italy, 80 France, 56 USA, 185 Germany, 655 Sweden</p> <p>Expectations formulated at an early stage was to gather at least 1500 attendees, 100 journalists. An outreach program was planned to attract young people and everyone interested.</p>
Events	<ul style="list-style-type: none"> ● Scientific Programme (84 scientific sessions, 258 speakers from 33 countries covering cutting edge science, 13 plenary lectures) ● Science in the City Festival: 24 activities in museums, parks, etc. ● Activities involving schools
Special programmes	<p>Social events Satellite events, before and after ESOF2004</p>
Legacy	<p>-</p>
Final notes	<p>There was a lack of sessions on humanities.</p> <p>Some partners said the link between ESOF2004 and industry was difficult to find.</p> <p>Exhibition was not effective since the venue with exhibitors at several different locations did not attract the participants enough.</p> <p>Science in the City was an effective arena to reach the public.</p> <p>Need to work harder to get more attendees from South and East Europe.</p> <p>High priority to get more representatives from industry and more young scientists at ESOF2006.</p> <p>The project team could not engage enough people.</p> <p>A special campaign was activated towards 1200 schools and teachers in the region.</p>

A2. ESOF 2004 Stockholm: the communication strategy

Goals	-
Target	-
Targeted actions	-
Visual identity	-
Materials	-
Multimedia tools	Website, newsletters
Advertisement campaigns	Special campaign to 1200 schools of the region.
Media collaborations, sponsors	-
Coverage	349 media representatives, 159 articles citing ESOF just after the event

** The first ESOF 2004 final report was much less detailed than the following ones, with a limited amount of information about the communication strategy.*

A3. ESOF 2006 Munich: the event

When and Where	15-19 July 2006, Munich
Logo	
Motto	New Research, New Technology, New thinking
Key messages	<p>ESOF2006 initiated by the Robert Bosch Foundation and the Stifterverband für die Deutsche Wissenschaft, jointly with Wissenschaft im Dialog. When Wissenschaft im Dialog signed the bid for the organization of ESOF2006 in 2004, one of main arguments for the application of Munich was the possible link between the "Wissenschaftssommer", the German national science week and the ESOF conference, especially the outreach aspect. Both events could profit from this connection. The first would give a platform to the ESOF outreach and the outreach projects would enrich the "Wissenschaftssommer" through European best-practice examples in science communication.</p> <p>Main objectives are to present science and humanities at the cutting-edge, serve as an open forum for debates on science, involve the general public with all the stakeholders in science-related issues, build bridges between science in Europe and in other parts of the world.</p> <p>Compared to ESOF2004, ESOF2006 had the advantage of already being known by potential exhibitors. The aim was to create a vivid marketplace, where local but also European institutions were invited to present themselves to visitors and to the broad public.</p>
Participants	<p>2150 participants from 58 countries, 423 speakers from 31 countries (304 men and 119 women, 28% women) mostly from Germany and the UK, 201 young scientists (108 women and 93 men, 39 travel grant from Central-eastern Europe and France), 485 journalists.</p> <p>About 60000 people visited the Wissenschaftssommer and outreach projects.</p> <p>31 exhibitors (only 2 industrial companies and all the others NGOs or European institutions: lista completa pp 46 report) and more than 2200 visitors visited the exhibition.</p>

Events	<ul style="list-style-type: none"> • Scientific Programme (66 sessions: 19 organized top-down, proposals did not come through the call but were initiated by members of programme committee or by inviting specific organisers) • Career Programme (14 sessions: thematic sessions, skill development workshops and networking events. Reduced fees for under 33. Themes: job interview workshop, brain drain, mentoring, north-south west-east divide, peer review process, media communication, international mobility for young researchers, top five scientific career paths) • Exhibition • Outreach and Science in the City Festival: 18 outreach activities from 6 countries, a mix of exhibition, theatre, lectures and workshops for a total of 65 individual events in a central place (Marienhof) in Munich (44 projects submitted, many dropped out because of financial reasons)
Special programmes	<p>First poetry competition</p> <p>Pretzel with the Prof: young scientists and students have the chance to meet and talk with renowned Professors</p> <p>Social events: science film festival, evening reception, physicists magicians</p>
Legacy	<p>The Science meets Poetry day originated at ESOF 2006 in Munich</p>
Final notes	<p>Call for proposals open in March 2005 for 3 months</p> <p>Committee structure less complex than ESOF2004 as far as the overall number of committees. General feeling: need to keep a certain overlap between old and new members to ensure a smooth transfer from 2004 to 2006. Moreover, need to balance individual bodies regarding geography, gender and age. ESOF2006 committee structure looked as follows: advisory board, steering committee, programme committee, finance committee, press- and marketing working group, local organising committee.</p> <p>Role of press- and marketing working group was also to serve as multipliers in their individual countries by disseminating news on ESOF2006 through their networks.</p> <p>Access to other organizations' networks and databases was sometimes denied: ESOF needs to build and keep up a central database of its own.</p>

Preliminary program was online about 6 months before the meeting (much appreciated by journalists and partners). One of the most demanding tasks was to define ESOF primary and secondary target groups and devise individual strategies to address their needs.

According to questionnaires: good variety of topics (more social sciences and humanities needed), great networking opportunities, great location, good science journalism issues discussed. Down side: sessions too long and too many in parallel, women underrepresented on the panels, generally unclear who the primary target audience of ESOF is.

Scientists appreciated the topics while media complained science presented was not "hot" enough. Science communicators criticised the lack of interactivity and engagement with the audience. **Each group judged the meeting according to their professional criteria** which justifiably raises questions about ESOF general profile and focus.

ESOF2006 was very successful in enhancing the forum's credibility in the eyes of all players engaged in the scientific endeavour. ESOF will be hosted every other year in another European country. This raises **important questions such as how much local "flavour" shall the meeting convey**, how will it fit into the existing framework of national events and how can a proper knowledge transfer from one organising team to the other be ensured. For ESOF to be valued and recognized as a recurring event it remains vitally important to **build up centralised resources** such as a corporate identity and a memory for certain rules and procedures. Also, it should remain in the central interest of ESOF to **"internationalise" its approach further** as to enhance its profile as a platform for world-wide exchange.


Recommendation: work with a limited number of broader defined themes from the beginning. To organise an entire session was considered too time consuming by scientists: better foresee poster sessions (more appealing for PhDs and young researchers).

Recommendation: more hot/controversial issues addressed, more late/breaking news, raise level of presentations (too basics sometimes), more environmental issues, more social sciences and humanities, more women on the panels, web page more interactive and user friendly.

A4. ESOF 2006 Munich: the communication strategy

Goals	<p>To create a network of multipliers (before ESOF) and rise awareness about ESOF.</p> <p>To secure continuity in communication.</p> <p>To prepare the ground for the programme (until the program is announced).</p> <p>To support and day-to-day services to the press, generate news, address each target group according to its needs.</p> <p>To brand the conference location-mainly for general public (during ESOF).</p>
Target	<p>Scientists first, academies, universities, science writers' associations, ministries of education, science museums, general public</p>
Targeted actions	<p>Promotion at relevant events, distribution informative material, six press conferences in 6 European cities after the programme was announced. Help desk, press briefings, press lounge and reception (during ESOF).</p>
Visual identity	-
Materials	<p>Flyers, brochures, ppt</p>
Multimedia tools	<p>Website, newsletter, direct mailings, press releases through online information services (Eurekalert), virtual newsroom hosted by Eurekalert! two weeks before ESOF</p>
Advertisement campaigns	<p>Ads in scientific magazine to announce the programme and call to register.</p>
Media collaborations, sponsors	-
Coverage	<p>Over 900 news items from feb 2005 to sept 2006 (radio-6 German radios, tv broadcasts also in other European countries). 80% during ESOF. 50% of news items in print publications, 39% online articles and 6% news agencies</p>

A5. ESOF 2008 Barcelona: the event


When and Where	18-22 July 2008, Barcelona
Logo	
Motto	Science for a better life
Key messages	The organising theme of the event was the general motto of ESOF2008: Science for a better life. Commercial companies, research institutions, universities, administrations, associations and networks, science media and communication agents and all other entities related to science were welcomed to participate in the event.
Participants	4114 participants from 63 countries, 511 journalists, 452 speakers (30% women), 123 Scientific Programme Sessions, 10 Career Programme Sessions, 4 Business Programme Sessions, 900 young researchers attended the Career Programme, about 10000 participants to the 70 Outreach Programme Activities
Events	<ul style="list-style-type: none"> ● Scientific Programme ● Career Programme in partnership with Nature Jobs (Themes: Jobs-careers-skill development, science communication, science policy, women and science) ● Business Programme ● Exhibition Programme ● Outreach and Science in the City Festival (dissemination to general public, to engage citizens in science and technology issues. Themes: Human mind, human body, planet earth, matter and universe, discovering science)
Special programmes	<p>Tapas with the Prof: to meet Nobel Laureates, politicians and decision makers</p> <p>ESOF Teens: many activities, among which, ESOFteens online platform (a website providing an interactive virtual research experience. Students were able to broadcast their research best practices by uploading videos, pictures, powerpoint files that best describe their research experience. It contains links to websites with latest news on science, information about European science fairs and awards, Resources, Teachers and Associations Best Practices, etc.), activities and competitions in schools, "do you have science appeal" training course for teachers.</p>

	<p>Special session 'Science and Business'</p> <p>Science meets Poetry</p> <p>Business opportunity programme, to attract business delegates at ESOF2008</p> <p>Satellite events: events hosted within ESOF2008, 10% discount on the registration fees plus technical equipment and support</p>
Legacy	-
Final notes	<p>The highest number of proposals featured in the Scientific Programme concern Science Policy (34). Among proponents from Eastern European Countries, only feature Serbia (1), Romania (1), Ukraine (4) and Poland (1).</p> <p>Women speakers, Eastern European Countries and social sciences are under-represented.</p> <p>Some scientific sessions were established with a top-down approach in order to cover important topics.</p> <p>Outreach is considered a satellite activity, not central to ESOF.</p> <p>It is suggested to launch an open call for the Career Programme (so far organizers are in charge of selecting activities and speakers) and to introduce specific sessions about mentoring and career planning.</p> <p>Science and Business was one of the greatest success: important to keep it and increase it in the future.</p> <p><u>ESOF 2008 main funding has been public, though it has aimed to foster private sponsorship. Scientific sessions were COMPLETELY NEUTRAL AND COULD NOT BE SPONSORED. DUE TO ETHICAL CONSIDERATIONS, PRIVATE BUSINESS CORPORATIONS MAY NOT SPONSOR THEM.</u></p> <p>It is suggested that journalists and entrepreneurs should be also included in the future in the "Meeting with Prof" event.</p> <p>The Exhibition Programme was a new activity which turns into success. All the sponsors and those sessions that could not go to the scientific programme were allocated here. It is also a source of income. A better room should be provided.</p>

A6. ESOF 2008 Barcelona: the communication strategy

Goals	Main priorities: to promote the scientific programme . Key institutional contacts to promote ESOF and help scientists to attend.
Target	Scientists, young scientists, general public, business companies, schools.
Targeted actions	<p>Promotion through universities, specialized magazines, research centres (target: scientists) Universities mailing lists and PhD associations (target: young scientists) Local partners-city council, local magazines, newspapers and promotional events (target: general public) Workshops and special activities (target: business companies and schools)</p> <p>Promotional events, advertising, 4 press conference around Europe (Brussels, Turin, London, Madrid), media monitoring</p>
Visual identity	The ESOF2008 corporate image was constituted by an ESOF2008 "illustration": young girl drawing science signs together with typical elements of Barcelona City.
Materials	Printed material (flyers, posters, brochures, banners), merchandising
Multimedia tools	Newsletter
Advertisement campaigns	<p>News in institutions' web page and newsletter, banner, diffusion of printed material, ESOF in the agenda of events.</p> <p>Ads in scientific magazines (Nature, Science, Economist, Seed Magazine) local magazines, buses, street banners, city council magazine, banner in strategic websites, ESOF promoted at 9 international conferences (organization of events and a stand)</p>
Media collaborations, sponsors	-
Coverage	Press clipping (193 spanish media, 102 online spanish media, 218 international media), TV (33 Spanish), Radio (15 spanish)

A7. ESOF 2010 Turin: the event

When and Where	2-7 July 2010, Turin
Logo	
Motto	Passion for Science - Science is in the air
Key messages	<p>Highlight the importance of the European Research Area for promoting social and economical development.</p> <p>Encourage the diffusion of scientific knowledge in as many countries as possible with special attention to the poorer countries (thanks to WebESOF).</p> <p>Create new communication instruments in European Science. Revive the scientific knowledge of Italy and Torino in particular, and increase the international visibility of scientific research in Italy.</p> <p>Draw the general public closer to scientific themes.</p> <p>Strengthen innovation policies.</p> <p>Contribute to the creation of new job opportunities for young researchers.</p>
Participants	4366 participants from 71 countries, 50% young researchers (< 35 years old), 330 journalists, 246 exhibitors, 706 speakers, 403 proposals received, 89 industries, 12 research centres. Estimated 75000 participants at Science in the City Festival.
Events	<ul style="list-style-type: none"> • Scientific Programme (123 sessions Scientific Programme) • Career Programme (30 sessions) • Science to Business (36 sessions) • Outreach and Science in the City Festival
Special programmes	<p>Pizza with the Prof: 24 professors, 240 people attending from 35 countries. The presence of high school students was a novelty for this edition: for the first time, one place was reserved for a high school student.</p> <p>The Speed Dating format was introduced for the first time at ESOF 2010 and aimed at offering a more informal meeting venue for the business-oriented participants – similar to what Pizza with the Prof was for the Career Programme.</p> <p>Science bus: involving 40 young scientists travelling between Barcelona and Torino to debate science and its latest frontiers.</p>

	<p>Strong focus on schools:</p> <p>School Programme, designed for students and teachers, to stimulate scientific education in schools and involve them in ESOF 2010.</p> <p>"Towards ESOF 2010" consisted of many activities, some of which were held during the school year 2009/2010, while the others were carried out in July 2010, during ESOF 2010. A total of 102 activities (18 for primary schools, 52 for secondary schools, 32 for teachers) for schools in Turin. It involved over 50000 students and teachers.</p> <p>Scientific summer academy: 5 lessons by keynote speakers of ESOF 2010 for the 45 best students in Piemonte.</p> <p>A day with Harold Kroto: the Nobel Laureate meet 1500 high schools students explaining the C60 structure. Juventus football players present at the event.</p> <p>Teachers programme: divided in 3 parts, before during and after ESOF. (1) English and Science (language course and how to use online teaching materials), (2) Teachers at ESOF (free entry), (3) English and Science II (how to make a lesson starting from videos of ESOF 2010). 70 teachers involved.</p> <p>High school competition: what can science do for society? Competition for high school Italian students. They have to produce a video clip about this topic. The project was also launched in Catalogna.</p>
Legacy	-
Final notes	<p>To involve as many young scientists as possible was a precise target of ESOF2010 from the very beginning. We thought that, in a time of severe crises, we should aim to involve as many young scientists as possible.</p> <p>The brand new Science to Business programme, dedicated to the entrepreneurial world, was also very useful and innovative.</p> <p>The actual attendance of policy makers was not what would have been desirable. ESOF 2010 was less effective in providing a discussion space on research policy issues.</p> <p>Almost 50% of attendees were 35 or younger, and almost 50% were women – a marked improvement from the past. Cultural and gender diversity of speakers was higher than in previous editions, but must be enhanced in the future. Comparatively few</p>

speakers came from Eastern Europe and developing countries.

Science to Business became a fully independent programme, integrated in the overall ESOF 2010 programme and an open Call for Proposals was launched, while in Barcelona 2008 the approach was top-down only.

As a source of income, the Exhibition provided to be more significant than expected in the initial budget.

The decision to create the School Programme was in line with the institutional commitment that, on various levels (local, national and European), has led in previous years to the activation of a series of policies to encourage educational innovation processes as an essential condition for achieving greater competitiveness in the economy (such as the Lisbon Agenda). The School Programme should have a more international approach. The Competition was the only project that let Italian and Catalan students get in touch. We strongly recommend launching it all over Europe.

The Promotion and Communication team structure should be programmed at least two years before the event.

ESOF 2008 QUESTIONNAIRE: The ESOF 2010 booth at ESOF 2008 in Barcelona invited participants to participate in a survey with the purpose of knowing people's expectations for the next edition of ESOF. Questions related to general objectives, themes, groups represented, etc. were asked.


ESOF2010Lab: the ESOF2010 Internet platform for young researchers, was launched in April 2010. This innovative open source platform featured on-line debates, consultations and collaborative document writing among young researchers, with the aim of pre-discussing the Career Programme themes and gathering opinions also from those who were not be able to attend ESOF2010.

A8. ESOF 2010 Turin: the communication strategy

<p>Goals</p>	<p>To highlight importance of ERA. To encourage diffusion of scientific knowledge. To attract participants and raise the profile of ESOF to potential media representatives. To increase international visibility of research in Italy. To draw general public closer to scientific themes. Main priority was to promote the scientific programme. Focus on “Passion for Science” as central universal message.</p>
<p>Target</p>	<p>Scientists, young scientists, general public, business companies, schools.</p>
<p>Targeted actions</p>	<p>Promotion through universities, specialized magazines, research centres (target: scientists) Universities mailing lists and PhD associations (target: young scientists) Local partners-city council, local magazines, newspapers and promotional events (target: general public) Workshops and special activities (target: business and schools) Contacts with institutions to reach scientific community, viral marketing, promotion at 32 national and international events from 2008 to 2010. The strategy followed three steps: (1) to promote the scientific programme, (2) to promote the School Programme, (3) to promote science programme on the local scale and increase number of participants (during the last 3 months before ESOF).</p>
<p>Visual identity</p>	<p>The ESOF2010 logo, designed both in Italian and English versions, is made up of brilliant and extremely lively colours. The motto “Passion for Science” recalls “Passion Lives Here”, the motto of the 2006 Winter Olympic Games in Torino. The motto is carved in coloured boxes that deliberately mimic the Mendeleev Periodic Table of Elements – at the same time a pillar of modern science and an image immediately recognizable by anyone. For the communication campaign a young boy and girl blowing molecule-shaped bubbles against a night skyline of Torino is used: a youthful message, not only to the scientific community that maintains a constant link to the city. The claim is “Torino - Science is in the air” to convey youth, freshness and the idea that ESOF 2010 in Torino was accessible to all.</p>
<p>Materials</p>	<p>Printed material (flyers, posters, brochures, banners), merchandising, presentation dossier, institutional leaflet (addressing scientific community), leaflets for the general public and leaflets for schools, advertising pages, postcard and philatelic cancellation.</p>

Multimedia tools	<p>Website, ppt presentation, banners with link to ESOF2010 website, newsletter, ESOF 2010 database - over 37000 contacts (scientists, universities, associations), digital cards and demo. Radio and tv ads (only in Italian to reach citizens and promote the Science in the City).</p> <p>WebESOF was a highly significant innovation at ESOF 2010. Set to follow selected sessions in real time (64) and download videos (185) and related material thanks to a video-on-demand repository. Free web streaming allowed people from all over the world to follow selected sessions. During the conference, 4000 users took advantage of this feature. The goal was to encourage the diffusion of scientific knowledge in as many countries as possible with special attention to the poorer countries.</p>
Advertisement campaigns	<p>Ads in scientific magazines (to promote the call for proposals and increase participants), ads in local newspapers (to support the sale of spaces in the Exhibition and promote the Science in the City).</p>
Media collaborations, sponsors	<p>Collaboration for advertising and logo promotion.</p>
Coverage	<p>Press clippings (515 national, 127 international - including news agencies, websites, radio, tv).</p>

A9. ESOF 2012 Dublin: the event

When and Where	11-15 July 2012, Dublin
Logo	
Motto	Your forum. Your future.
Key messages	<p>Growing sense of corporate identity of a European scientific community.</p> <p>Focus on European collaboration (ERC and ESOF).</p> <p>Enormous value of cross-border collaborations and mobility in the European research area.</p>
Participants	<p>Over 4400 participants from 81 countries, 400 journalists from 70 countries, 660 speakers (mainly Irish or British), 5 Nobel prizes, the heads of CERN, NASA and the NSF and the European Commissioner for Research Innovation & Science.</p> <p>Note: The geographic profile of attending delegates showed a significant spread across Europe and also in the US, with scattered representation from other areas. Germany was a particularly good source of delegates. This can be attributed to the support from the Robert Bosch Stiftung as is also evident in the geographic profile of media attendees. France continues to be a difficult market for ESOF with a lower attendance than the US – consistent with previous ESOF experiences.</p>
Events	<ul style="list-style-type: none"> ● Scientific Programme (420 proposals submitted for the scientific programme. Themes: The Future of Medicine & Health, Reshaping the Frontiers of Knowledge, Energy, Environment & Climate, Engagement & Education, Communicating Science, Science & Culture, Research Policy) ● Career Programme (Themes: the 21st century researcher, the diversity of careers for researchers, the global researcher) ● Science to Business (Themes: Horizon 2020, Female Entrepreneurship, Digital Innovation, Entrepreneurship Education, University spin-outs, Open Innovation, Business Clusters, What investors look for in business propositions) ● Outreach and Science in the City Festival (over 160 events during the year, with 600000 visitors), exhibition and film festivals

<p>Special programmes</p>	<p>Porridge with the Prof: the “definition of “Prof” was broadened beyond the usual definition of senior academic “professor” to encompass “professionals”, individuals pursuing a science career in industry and other fields e.g. media. This variety of expertise enabled the early career delegates to meet with people from alternative career paths.</p> <p>25 partner conferences: third party conferences associated with ESOF2012 held in Dublin in 2012.</p>
<p>Legacy</p>	<p>“ESOF strengthened the belief that public investment in education and science is the way forward” cit. ESOF 2012 Champion Patrick Cunningham</p> <p>A number of the ESOF 2012 partners have supported a three-day science event in Dublin, entitled the "Festival of Curiosity", since.</p> <p>A memorandum of understanding was signed by the European Commission and the NSF on supporting trans-Atlantic mobility of researchers.</p> <p>Engaging both the public and private sector led to strong lasting partnerships that have a positive impact on ongoing and future science public engagement collaborations.</p>
<p>Final notes</p>	<p>To ensure continuity from one event to the next, the ESOF hub was recently created within the Euroscience headquarters in Strasbourg. This has been possible thanks to the partnership between five European foundations: Compagnia di San Paolo, Fondazione Cariplo, Riksbankens Jubileumsfond, Robert Bosch Stiftung GmbH, Stifterverband für die Deutsche Wissenschaft and Euroscience.</p> <p>ESOF2012 also provided a positive representation of European research to those outside Europe. For example, the heads of the NSF, NASA and AAAS all attended the meeting. This is testimony to how important the meeting is now considered in the US.</p> <p>The bulk of the programme at ESOF is determined in a bottom-up fashion through an open call for proposals. To insure a comprehensive programme, for ESOF 2012 twenty four top-down sessions, across all programmes, were organised by the ESOF 2012 team.</p> <p>A major innovation at ESOF 2012 was that the Local Organising Committee expanded the “Science in the City” programme to</p>

be a major year-long programme known as the Public Engagement Programme (tot. 600.000 visitors along the year). The rationale was to maximise the impact on Dublin of hosting ESOF and to elevate to an entirely new level the engagement of the citizens of Dublin with science.

A number of **Science Ambassadors** were chosen in the lead up to ESOF in order to represent the scientific community in a way that the general public could relate to (teacher, researcher, tv broadcaster, actor). The Ambassadors chosen were from a variety of scientific backgrounds and were able to engage with various groups of the public.


Policy day: Announcement of one day tickets was issued, with a particular focus on Policy Day aspect of the programme on 1st July 2012. This was to encourage those who may have a specific interest in Policy Day, in addition to those who wanted to come for a single day of the conference to register at a reduced rate.

A10. ESOF 2012 Dublin: the communication strategy

Goals	To raise awareness of ESOF 2012. To maximize the media coverage by developing a successful working model with international journalists. To create a platform for media to showcase the latest advances in science.
Target	Scientists, students, policy makers, entrepreneurs, teachers, general public.
Targeted actions	<p>Before the event:</p> <ul style="list-style-type: none"> - A press conference at the AAAS meeting to launch the Science Programme call for proposals - Science-2-business launched at a business networking event in Dublin - Science ambassadors (researchers, TV broadcasters, comedians, teachers to engage with various publics) - Media promotion, speakers interviews, marketing, media relation <p>During ESOF:</p> <ul style="list-style-type: none"> - Media operations for a smooth running of the event - Promotional activity - Media Room for journalists, media networking event on July 13 with a guided tour of Science in the city event - One day reserved to policy-related topics
Visual identity	Not specified in the Final Report.
Materials	Printed material (flyers, posters, brochures, banners)
Multimedia tools	<p>Two separate websites, one for ESOF and one for the Science in the City Festival. Website accessed from over 174 countries and reached a total of 202,892 visits from Jan 2012 to July 2012.</p> <p>Social media (for the first time, an entire dedicated chapter in the final report). A strong connection between social media and website, with shareable contents. Used Facebook, Twitter and LinkedIn to cultivate an online community to promote the event. Overall an online community up to 8301 users. Over 25K individual mentions and uses of the official tags were generated during the conference. Social media was the highest driver of website traffic, above online marketing, advertising, partner website referrals, online media coverage.</p> <p>Interactive online programme: attendees could create their own personal schedule, also they can connect their personal social media accounts with other attendees. Online banners.</p> <p>37% of participants heard about ESOF online, 24% through emails, 15% from promotion</p>

Advertisement campaigns	Pre-publicity programme to raise awareness of ESOF2012 among stakeholders (scientists, business leaders, governments, scientific media)
Media collaborations, sponsors	Media partnerships with both national and international broadcaster and publications (Nature, The Irish Times, RTE - radio telefis eireann)
Coverage	733 hits (international, Jan-Aug 2012) and 445 hits (national, Jan-Aug 2012)

A11. ESOF 2014 Copenhagen: the event

When and Where	21-26 June 2014, Copenhagen
Logo	
Motto	Science building bridges
Key messages	<p>The headline of ESOF 2014 and the Science in the City Festival was Science building bridges with the goal of bringing researchers, delegates and the general public together to share knowledge with, and learn from, each other. The eight themes addressed aimed to link the natural and social sciences, medicine and humanities and were chosen to stimulate discussions related to the political, economic and business perspectives, together with media involvement, gender, ethical and public perceptions.</p> <p>This motto was chosen to illustrate a vision of raising public awareness of science and to strengthen the effective 'bridges' between science and society that are synonymous with EuroScience Open Forum. Denmark is known for its many bridges, which emphasise the need to be connected, and also signal the importance of two-way communication.</p> <p>"We invite our participants to think outside the box and take an active part in the debates. It is through this dialogue that we want to strengthen the ties between science and society" cit. Gunnar Oquist, ESOF 2014 Programme Committee Chair.</p> <p>"The Danish government is determined to turn Denmark into one of the world's leading innovation economies. We recognise how important it is for a small country like Denmark to be open towards the world. Only by collaboration and internationalisation will we be able to create and attract the jobs and talents of tomorrow. Denmark has a strong tradition of promoting science and innovation. According to the latest Innovation Union Scoreboard, Denmark is ranked as the second most innovative economy in Europe. One of the explanations for Denmark's success is our firm commitment to ensuring that our companies invest in research and development. Our most recent records show that private investments in R&D account for two per cent of the Danish gross domestic product (GDP), while public sector investments account for one per cent. Investing in science and</p>

	<p>innovation is crucial as it will contribute to finding solutions to the global societal challenges and improving quality of life” cit. Sofie Carsen Nielsen, Denmark Minister for Higher Education and Science.</p> <p>One major priority is to strengthen research training and education, making the programme as attractive as possible for the younger generation of researchers and students</p>
Participants	Over 4000 participants from more than 88 countries, 569 speakers (39% women), 294 proposals, 5 Nobel Laureates, 38000 attending the Science in the City Festival, 298 journalists, 44 exhibitors
Events	<ul style="list-style-type: none"> ● Scientific Programme ● Hot Science (to showcase the most current scientific themes, ex. E-cigarette, war-machines and robots, genomics) ● Science Policy Programme ● Science to Business Programme ● Career Programme ● Science in the City Festival
Special programmes	<p>Picnic with the Prof: 29 professors and 145 researchers attending.</p> <p>Science Policy Programme introduced for the first time.</p> <p>Career Fair: a digital platform where companies can advertise open positions. That included 22 company profiles and 109 job descriptions. 1.869 people visited www.careerfair.esof2014.org over June-August 2014.</p> <p>Pathable, online community: it was launched at the end of January 2014 and was updated on a regularly basis until the day before ESOF 2014. Besides from serving as the online programme, Pathable also served as a social community, where delegates, speakers and Session Organisers could see the programme and interact with each other, e.g. by arranging meetings at ESOF 2014.</p> <p>First European Conference for Science Journalist (ECSJ): on 22 June 2014 the ECSJ event was hosted at the Faculty of Health and Medical Sciences, University of Copenhagen.</p> <p>ESOF 2014 Future Academy. During ESOF 2014 delegates and stakeholders from around the world met the nearly 200 upper-secondary students and their teachers from all over Denmark on a number of occasions. Young science</p>


	<p>communicators acted as “junior reporters”, interviewing scientists and delegates about the latest advances in science and technology and the role of science and technology in society and public policy. In the bid for ESOF 2014 “ESOF Academy” was proposed, in order to get the younger generation to reflect upon science. The goal was to organise a learning and engagement process in selected Danish upper secondary schools leading up to ESOF 2014.</p>
<p>Legacy</p>	<p>The greatest impact of ESOF 2014 was that the many debate and discussions contributed to find solutions to global challenges. Dialogues were held at all levels in society, i.e. across scientific disciplines, across different age groups, and across civil society. The huge interest from the various target groups shows a substantial interest in the interdisciplinary spirit of ESOF. Focusing on citizens was an important aspect of ESOF 2014, as it is acknowledged that citizens have an increasing stake in science, technology and innovation. Engaging multiple actors in the innovation process contributes to the responsible research agenda. The conference contributed to increased understanding of the European Research Area, as well as increased awareness of interdisciplinary and challenge-based research. ESOF2014 emphasised the need for improved coordination between the different programme tracks and themes based on the rationale that science should not ‘talk’ to policy, business or the public, but there should be a real opportunity for a two-way-communication.</p>
<p>Final notes</p>	<p>The most attended sessions are those related to Science Policy.</p> <p>Various organisations, including the Danish Ministry of Higher Education and Science, CNRS (Centre National de la Recherche Scientifique) in France and the FWO (Research Foundation Flanders) in Belgium, supported the participation of young researchers at ESOF2014 by offering travel grants through open calls.</p> <p>It was deliberately chosen not to use Facebook for the communication strategy, as Facebook in Denmark is primarily used privately and not so much in a professional context. Target of social media campaign (Twitter and LinkedIn) are journalist, possible delegates and opinion leaders (people with many followers). Facebook profile only for Science in the City</p>

A12. ESOF 2014 Copenhagen: the communication strategy

Goals	Not specified in the Final Report.
Target	Social media strategy had three target groups: potential delegates (objective: registration), journalists (objective: registration and generate awareness), gatekeepers-opinion formers (objective: disseminate information and engage in debates)
Targeted actions	Media travel grants for science journalists (40) and science journalist students (10). Media center at the event venue, information desk, lounge area, two interviews rooms, press briefing room. Also an online media room was set up. For accredited press press tours were offered.
Visual identity	Science in the City: strong visual identity and "science is..." storytelling. To achieve the aim of building awareness and ultimately attendance, it was chosen to keep the visual identity of marketing materials very simplistic in order to get the message out loud and clear: There is a science festival taking place in Copenhagen/Carlsberg City 89 District from 21-26 June 2014 – it is for all, and it is FREE. Large statements causing curiosity and wonder (Science is... A Giant Toilet, Science is... Tasty Trash, Science is... Under Water, etc.) were added to a white background together with the purple circle for easy recognition.
Materials	Printed material (flyers, posters, brochures, banners)
Multimedia tools	Websites , one dedicate to the Science in the City Festival. Apps for smartphones . Social media channels : only Twitter and LinkedIn. Chosen not to use Facebook as in Denmark mainly used privately, not in professional context. Twitter most useful social media, most used channel for promotion, debate and information. Allocated budget for Google advertisement (remarketing campaign: when people visited ESOF2014 website were exposed to ads on other websites. In addition, ads was displayed when people searched for words as "science conference", "science event", "keynote speakers' names")
Advertisement campaigns	-
Media collaborations, sponsors	ESOF2014 opened for media partnership in July 2013: chosen one Danish science news service, one Danish daily newspaper, Nature Publishing group and NatureJobs

Coverage	By end of August 2014: 1267 media hits (nationally and globally) in print, radio, TV, Web. Pre-event coverage (2011-may 2014): 250 media hits. Event covered in 25 European countries (mainly Denmark, Germany, Spain and UK) and 18 foreign countries (South Africa, USA, Mexico etc.). Media hits mainly online.
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A13. ESOF 2016 Manchester: the event

When and Where	23-27 July 2016, Manchester
Logo	
Motto	Science as revolution
Key messages	<p>ESOF 2016 in Manchester wants to reflect on the City's impressive legacy of scientific endeavour, from the industrial revolution to the present day, and into the future. Manchester is where Ernest Rutherford first split the atom, where Alan Turing created the programmable computer, and is now the home of graphene. Manchester has an impressive scientific heritage with numerous intellectual successes establishing the city as a key European centre of academic discovery.</p> <p>Pioneering breakthroughs include the first 'true' canal, the first intercity railway station and the first stored program computer. Major discoveries in physics by scientists either educated or born in Manchester include the electron (J. J. Thomson, 1897), the proton (Rutherford, 1917), and the neutron (James Chadwick, 1934). It is the city in which John Dalton, James Prescott Joule, and Alan Turing all studied. Manchester was the first global industrialised city and has a long history of innovation and exploiting science and technology for commercial success, from the splitting of the atom (the foundation of atomic power), to the first modern computer.</p> <p>ESOF 2016 wants to showcase the latest advances in science, to promote dialogue on the role of science and technology in public policy, to stimulate and provoke public interest and engagement, excitement and debate about science and technology, to engage the European science community with global partners and perspectives and to interrogate the interplay between science and society, inspiring public debate on science-related societal change.</p>
Participants	3600 delegates (15% young researchers) from 83 countries, 113 industries (pharmaceutical, healthcare, telecommunications, energy, engineering), over 40000 people at Science in the City, 65 exhibitors, over 400 journalists and communicators, 717 speaker (gender balance, 42,5% female), 4 Nobel Laureates

Events	<ul style="list-style-type: none"> ● Scientific Programme ● Science to Business ● Career Programme (main goals: to develop a career with sustainable potential, to help early career research sessions, to develop networks and opportunities for innovative collaboration) ● Outreach and Science in the City Festival
Special programmes	<p>Pi(e) with the Prof: 27 professors, one every 9 early career researchers.</p> <p>Career clinic sessions: career advices and CV coaching, in collaboration with the Manchester University's centre for academic and researcher development (CARD)</p> <p>Debate Science!European Student Parliaments: students from local student parliaments in 16 European cities drafted a list of resolutions, then given to Robert-Jan Smits (Director-General of DG Research and Innovation at the European Commission) and Julie Ward (European Parliament member). 1500 youngs and over 100 scientists involved.</p> <p>Bluedot, a new festival launched at Cheshire observatory, to miz science and music. Over 400 tickets sold.</p> <p>Horizon 2020 special event: event promoted by the European Commision about science communication and addressing researchers and media. Participants had the chance to select Horizon 2020 projects.</p>
Legacy	<p>New and stronger collaborations between the universities of the city.</p> <p>Higher engagement with national organizations as the Royal Society and the Wellcome Trust.</p> <p>The “Great Science Share” event has become annual.</p> <p>Important support to the scientific tourism of the region (through, for example, science walks, open labs).</p> <p>Several conferences organized for the future in the city.</p> <p>New contacts with science journalists and communicators.</p> <p>8.3 million £ economic impact for Manchester city region.</p>
Final notes	<p>-</p>


A14. ESOF 2016 Manchester: the communication strategy

Goals	Ensure ESOF came across as an event of status within and outside of the city. Create a strong a coherent visual language across all of the brands to interconnect all elements. Promote a positive view of Manchester as a location for major conferences/events and as a place to get involved in science.
Target	Scientists, students, young researchers, teachers, policy makers, entrepreneurs, general public.
Targeted actions	Media contact lists to disseminate press releases and information. Travel grants for journalists (155 applicants, 22 grantees). Press room, press tours and events for the media.
Visual identity	<p>Considered “imperative” to add clarity to the brand. Clear aim to create a strong a coherent visual language.</p> <p>EuroScience logo and the Manchester "M", well recognized symbol of the city, official logo of the city.</p> <p>Felt there was a need to spell ESOF out in some cases: aim of redefining the logo was to ensure that ESOF 2016 was clearly and confidently communicated to the core audiences, whilst ensuring a strong visual presence around the city.</p> <p>Used Manchester's key scientific "firsts" as the inspiration for the approach (Rutherford's first splitting of the atom: ESOF 2016 colourways associated to coloured lines of emission spectrum).</p>
Materials	-
Multimedia tools	<p>Defined the first truly digital ESOF. An entire detailed chapter about digital communication in the final report.</p> <p>Online advertisements.</p> <p>Newsletters and press releases (26) to promote the event and the Festival. These were a primary tool to communicate details of the programme, opportunity for sponsorship and to push delegate registration.</p> <p>Interactions with stakeholders and audiences developed through a full mix of social media using a multitude of channels: YouTube is chosen as video handling platform (due to limited handling capabilities of the ESOF website). Twitter account amassed over 6500 followers in the lead-up to the conference. ESOF 2016 Delivery Team had Facebook and Linkedin accounts but were underutilized mainly due to limited staff capacity. ESOF 2016 app received 1870 downloads, 85% from mobile but would need to be improved.</p> <p>Redesigned website to be more user-friendly, separate website for the Science in the City programme.</p> <p>Online programme for the conference.</p>

Advertisement campaigns	Marketing strategy relied heavily on digital media. Strong presence at a number of national and international conferences (7). Outdoor advertising campaigns (3, the last one much larger, two weeks before ESOF and throughout the conference: posters, digital screens, lamppost banners, installations at main stations and airport). Separate communications and marketing plan developed for promoting Science in the City festival, with a dedicated website focused towards a more generalist audience.
Media collaborations, sponsors	ESOF 2016 built partnerships with key media organizations (including Nature) focusing on global reach. Main aims for this were to secure at least one media partnership from each of the following categories: UK specialist science title, UK national newspaper, UK broadcast, non-UK specialist science media.
Coverage	314 media and 179 science communicators accredited from 43 countries. The event was widely covered. Over 1000 media hits for ESOF (web print radio and TV from 25 countries. 1014 online articles, 58 print articles) and over 250 for the European City of Science. 65% of coverage achieved within the UK. 70% media coverage across both projects.

A15. ESOF 2018 Toulouse: the event

The information included in this table have been extracted from the candidature document of Toulouse to host ESOF 2018. The event will take place in July this year and this why some data are not available yet.

When and Where	9-14 July 2018, Toulouse
Logo	 The logo for ESOF 2018 Euroscience Open Forum Toulouse. It features a circular graphic on the left composed of several overlapping semi-circles in red, orange, yellow, green, and blue. To the right of the graphic, the text 'ESOF 2018' is written in a bold, black, sans-serif font. Below that, 'EUROSCIENCE OPEN FORUM' is written in a smaller, black, sans-serif font. At the bottom, 'TOULOUSE' is written in a large, red, sans-serif font.
Motto	Sharing science: towards new horizons
Key messages	<p>The sharing of science is of fundamental importance, the necessary step that today allows science to be openly available, to cross barriers between disciplines communities and countries, to be conveyed to citizens and to be the anchor of a knowledge based society. It's an active endeavour that needs tools, methods, political will, imagination, curiosity and reward.</p> <p>“Sharing science, demonstrating and debating science, science in the making, science in the sharing. Our vision is to raise awareness of science in the public and to foster the sharing of science between disciplines and between science and society in a European space and beyond. Researchers, business representatives, policy makers, journalists and the general public will have a chance to meet, share views, discuss new discoveries and debate the direction that research is taking, with its societal implications” cit. Anne Cambon-Thomsen, Candidature Toulouse 2018.</p> <p>Aim is to facilitate a conference programme that will be accompanied by an ambitious outreach programme, including specific actions towards school-aged students and the young generation.</p> <p>Toulouse is a true city of science and innovation, together with the very ancient roots of its academic tradition and the commitment of regional institutions towards a stakeholders' dynamics of sharing.</p>
Participants	-

<p>Events</p>	<ul style="list-style-type: none"> ● Scientific Programme (including a Forum on how sharing policies and practices shape the making of science today and vice versa). ● Science to Business ● Science to Media ● Science in the City Festival (to be extended to other sites of the region to better reach citizens of the various sectors).
<p>Special programmes</p>	<p>Young journalists and young scientists will be twinned to produce news, events and highlights during the ESOF.</p> <p>Space for the arts: participants who are amateur musicians, painters, photographers will have the possibility to play together in a dedicated space.</p>
<p>Expected legacy</p>	<p>To emphasise the sharing of knowledge, culture, innovative approaches and perspectives with the Mediterranean countries and Africa and make of this ESOF a take-off platform of collaborations and exchanges of views with this part of the world.</p> <p>Specific actions for young participants, women in science, exploration of how the spirit of sharing can enlighten the setting of science priorities, collaborative practices, innovation policies, practice of the dialogue science-society in different cultural environments.</p> <p>Creation of new doctoral modules on "what it means to organize a scientific event" with a European dimension: these PhD students will have practical tasks within the ESOF organisation and will be granted a free entrance.</p> <p>At the local level: ESOF 2018 will catalyse many activities related to science and it will be the starting point of innovative collaborations. Toulouse has many attractive facets: beneficial to the tourism industry.</p> <p>At the national level: ESOF 2018 will highlight the French scientific landscape and foster its visibility at European and international level. Media coverage and the message of sharing science for the benefit of all will impact the image of the town.</p> <p>At the international level: ESOF 2018 will foster dialogue and sharing, be it in science, innovation poems or music in a multicultural and multidisciplinary environment is a strong message bearing European fundamental values and requiring openness and tolerance.</p>

Appendix 2 - Interviews

Full transcripts of the interviews are reported here in their original form, in the same order they have been realized in the period between 12 and 29 March 2018.

Effrosyni Chelioti, PhD

Chair of the ESOF 2010 Turin Communication Committee, Member of the ESOF 2006 Munich Steering Committee, Member of the ESOF 2008 Barcelona and ESOF 2010 Turin Programme Committee.

Dr Chelioti, why do you think a format such as ESOF is needed?

I would embed it very strongly in this European context because I believe it's been strongly connected with development, on a European level, at the beginning of the new millennium. In my view, although I interviewed many people involved in the very initial phase, I don't think it is only because there was this AAAS conference and therefore we necessarily needed something like that in Europe. I think we would have come to ESOF anyway. It was rather a development at the European level to make it necessary. There wasn't something like that before, something that could bring all these actors together and show how much high level research was produced in Europe. This is my personal opinion, it's obviously not something I academically analysed in my thesis. I believe it is the embodiment of a need that has developed in Europe, to bring these actors together and showcase what is going on in terms of research in Europe. If you will, an embodiment of this European Research Area that was proposed at the beginning of the millennium.

Do you think ESOF tries to answer to a need of identity as well?

This is a question I have also dealt with during my PhD. We are talking about cultural identity, not often found in STS: it goes more strongly in the social aspects, into the social realms. I based my thesis on this notion of co-production: science and society are co-produced and therefore these two realms are not separate anymore, they have become one and the border between them is a grey zone, they are overlapping. This is the way I argue. From a science communication point of view,

you should look strongly on the output of ESOF in terms of materials, articles, social media, publications, website: everything that went out of ESOF to society and what came in, from social media for example which was more strongly introduced in Copenhagen and Dublin, enabling a more interactive exchange.

You could look at the chapter of my thesis that goes into the European Commission motivations. I interviewed Rainer Gerold, who was the first director of the Research DG's science and society directorate, and this is an important point for you to investigate as well because that was the first time the Framework Programme significantly increased the amount of money available for science communication activities in general on a European level. If you look into this Science and Society action Plan (2002), ESOF is one of the activities described, named as European Convention for Science. That made it easier for the EuroScience people to apply for their first money from the European Commission.

Which role has the science communication played in the framework programmes in funding structures on the European level? It's also an issue of knowledge transfer that, back then, was only outreach activities. Everyone I interviewed told me it was a wonderful bi-product but not the main goal of ESOF. I don't know how it turned out after Dublin. In Munich it was quite successful because there was a festival for children and teacher happening at the same time. In Turin was not very successful: it was hot, people were on vacation, it was empty. Barcelona, on the other hand, was bombastic: you have another tradition there, the cosmocaixa museum, many people in town, massive activities, lots of people.

What's the goal of ESOF?

If you look at the statistics, at least of the first meetings, the senior scientists are actually the minority. No one really presented hot science there. It was more about creating awareness about science, the knowledge of knowledge but not your classic scientific conference where publications are presented. It developed in a way that it became an excellent ground for the young scientists (who are very pushed to join). It's a good thing because it means it was needed. You have a lot of knowledge brokers, professionals who earn their living from brokering knowledge and being active between researchers and other publics that are related to this scientific realm

(ex. Consultants, representatives from foundations, coaches and trainers, recruiters, technology transfer scouts, ...). All these new professions have become necessary in a professionalized research enterprise. These are increasingly participating in conferences like ESOF because they are hybrid conferences. Not just for scientists and editors, ESOF is an open field that offers business opportunities.

Are sessions and events of the Scientific Programme addressing the general public or rather specialists in the field?

The conference is not by invitation only, but you have to pay to participate (the only exception was in Munich with free access to Keynote Lectures), most of the lectures are not free. Most of the people who were there were science professionals in a way, you didn't have the average citizen. But it depends indeed on how you define general public: this concept does not exist in STS, because all publics are somehow specialized, with different expertises: politicians, administrators etc..

Does ESOF want to sell science? Is the presence of ESOF partners from industry meaning this?

Of course science has been sold in the context of ESOF in different ways and at different levels. You have Nature jobs partner from the early on. They co-organized and sponsored the Career programme: it's an excellent platform for them to advertise. They sponsored sessions, offering coaching to scientists.

Another example: a target group always very present at ESOF is policy makers. For them it's an opportunity to see and be seen, for themselves. You have tension between European and local.

Is ESOF communication strategy declined more on a local, national or international level?

Local and European. National, it depends a lot from the country. In Italy there wasn't for example: local government was strongly involved but the government in Rome was not involved at all (only a video message by Giorgio Napolitano). And then there were European partners, contributing to the committees of the EU people. In Munich

there was a stronger presence of the national government than the Bavarian: the president and research minister both attended.

Back then, during the first meetings, the communication was very unidirectional, from ESOF to outside, there was hardly an interaction (maybe some debate but small events). You didn't have interaction via social media for example. Live debates on an issue while the lecture is taking place, for example, that was introduced later on. In this case you can speak about interaction and transportation of scientific contents but also an exchange on the role of science itself. In the first ESOF this only took place in the walls of the conference. There you had specialized publics talking about some topics (often topics discussed also at a national level). Talking among themselves. There was a limited permeability in the one or the other direction, I believe.

Do you think science can somehow reduce social inequalities?

That's a very good question. I haven't analysed this topic but if you follow the value chain I do believe that science in terms of education, finding new methods for better employment, mobility, inclusion, better governance, yes, it reduces inequalities in a way. And with science I also mean humanities and social science too.

What is the proportion of humanities and social sciences in the programme?

They were under represented, although the rhetoric was always natural sciences, social sciences and humanities. The goal was that social sciences and humanities should be equally represented in the program in terms of attendance, in the communication towards society etc. There was a consensus on that during the first years (when I have personally participated in the organization of the event). Therefore, there were respected members in the scientific committees with backgrounds in social sciences and humanities too (Helga Nowotny, for example, sociologist of science). You did have several social scientists and people from the humanities represented also in the ESOF committees who decided the programme. I have to say, it was not always easy to find enough women and prominent representatives from the social sciences.

Does ESOF take into account European main lines in terms of current policies, when setting up the scientific programme?

They consider the trends. I experienced the program selection for three ESOF editions 2006-2008-2010. It didn't play a predominant role. You have a large part of the ESOF program being made up as a bottom up through the call proposals and there were slots reserved and curated by members of the programme committee, reserved for hot science, up to date developments, in order to make sure that aspects wouldn't be left out. To make you an example: in 2008 there were Olympics, so some sessions were about health, nutrition, doping. Public needs a scientific opinion on current events.

You had themes, of course influenced by current developments, but the influence of each individual programme committee member was stronger than any Framework Programme Societal challenge lines. Topics within all editions, compared to the ones of FP, are the same. That's interesting. In the end, topics are more or less the same: new trends, quantum technology, data science..these are omnipresent. Obviously you wouldn't avoid these and they will be in FP9 as well.

Who is writing the final reports?

The Project team, not the EuroScience.

Why is there no evaluation after each ESOF event?

You need to define the criteria beforehand. That was one of the reasons why ESOF secretariat was established in Strasbourg at the EuroScience headquarters. It only survived four-five years. You may want to talk with Raphaela Kitson-Pantano, head of ESOF secretariat for a while until it was dissolved. The idea was to create a ESOF memory to make sure to have a repository of all documents and reports and eventually also set quality standards for ESOF. But since you have completely new teams taking over for every ESOF edition, you have new funding institutions (local ministry etc). The idea was to preserve a sort of continuity, standards and define criteria by which the success or lack of it could be measured.

Are the scientific session sponsored by private companies?

Scientific sessions were not sponsored. The first thing that was sponsored was the Science to Business programme, first introduced in Barcelona. It was also the first time you had this topic of technology transfer. Some sessions were sponsored by companies, sponsored in the sense they had their logo and coffee after the event, not the kind of sponsor you can expect, that distorts the contents, does product placement or promotion. It was harmless back then. This is an iron rule also at AAAS, you have satellite events that are sponsored, but everyone knows it's a sponsored event, you know many different things in them. Then you have sponsored areas at the exhibition, within their stand companies can hold the events they want.

In which direction do you think ESOF will evolve in the next years? Do you think it'll still be needed? Would its goals change?

I think it's still needed. First of all, it wouldn't have survived if it wouldn't be fulfilling a need that is out there. The question is what these needs are and whose these needs are. I think the European component is important but I believe, for this local and European tension, it's also used on a local level to highlight specific priorities, structures or the lack of them. I believe it is used as a vehicle to promote science itself and the respective scientific communities, and make them more visible and more attractive.

Won't it turn into a more marketing/business-oriented kind of event?

I don't see that very much, even if I don't have a full picture on how ESOF has developed over the last years. What I have seen is that it has developed even more strongly towards the direction of science policy. You have a very strong science policy element there and as long as it's also critical about the role that policy should play for science and science for policy, than it's a good thing because it accentuated how strongly overlapped these two realms are. But if it's only a showcase for politicians to come, talk and then leave, that's not a very positive development I would say. We don't have a kind of tradition as in the US where you'll have big corporates sponsoring something like ESOF because there is not something they can get out of it. ESOF would need to develop in something where real tech transfer takes place, where startups companies present themselves, where you have

partnering events, transfer scouts. This would make the event more commercial but it will also benefit in showing innovation and tech transfer activities. But I have not seen ESOF moving in this direction yet and, nowadays, this field has developed so strongly that you either go all the way or leave it. Where I feel ESOF has potential and there is a lot of music there, is science policy and this all issue of science diplomacy and the role policy plays for science and science for policy. With this situation in the US where the State is pulling back from science diplomacy and science all together, with the post of Scientific advisor not being filled for a long time now, and with China so aggressive on the other side, I believe there is a chance for Europe there and a necessity for Europe to contribute and to think about how it values science and its policy makers

Did ESOF contributed to the creation of a larger/stronger network of scientists and academics in Europe?

An informal one. There is a lot of potential to formalize that but that would require sustainable structures like alumni. By now you have other possibilities with social media and online networks. You don't really need institutionalized structures.

Can new scientific collaborations be established at ESOF, similarly to what happens in scientific conferences?

It can and I think it does. In unexpected ways, actually. At ESOF you don't necessarily meet your peers and competitors, you meet other people that can inspire you to take your research in new directions. This is something that ESOF has the potential to do even more in the future.

Helga Nowotny and others wrote two essays about the shift from mode I to mode II knowledge production (you can find the full analysis in my thesis). They basically say mode I is the old way of doing research, where you only had people from one research field, you didn't have practitioners, lab technicians, communicators contributing to the process of knowledge production and now we have moved to mode II: you have transdisciplinarity, specialists from different fields of life, people bringing new methods, people doing the hardware, ..research nowadays can't take place in the old way. There are many criticisms on that, but now the predominant

mode is mode II. What they describe is correct, they are saying you can't do research in a field without many other experts in other fields and technological support. They predicted that already in 1994 and now we see that happening. All these people who come in have their own culture, methods, backgrounds and they change the way research is taking place and also change the outcomes, the core and the fabric of science, not limited within scientific room.

A plus of ESOF as respect to more specialistic conferences, is that you have all the other publics.

Is new scientific knowledge being produced at ESOF? Are there other legacies at a local and international level?

My opinion on that is in the conclusions of my thesis. What has been produced at ESOF is knowledge about knowledge. Not new science or new scientific knowledge because you hardly have any specialist exchange there about the research, you may have now (as ESOF has become larger now) sparks of new collaborative activities but it's rather the awareness of this multiplicity of research and how it has changed and become an intrinsically social endeavor. This is an eye opening experience for many although I must say that hard core researchers will never go to a place like ESOF unless they are very vain and you offer them a plenary with thousands of people sitting there and politicians and all this. This is also interesting for your conclusions because ESOF offers exposure to many publics. In specialized conferences you only get exposure within your community, among the peers but not on national TV. You don't have this anywhere else.

You make science more accessible, science celebrating itself (the same way other products are celebrated at fairs, corporate events..) and show how relevant it is. It is a party, a festival, you can debate how useful it is, if money shouldn't be spent somewhere else. Science never becomes too specialistic at ESOF.

You have translation work taking place at ESOF, people interested in the same things for different reasons and they gather there. Such gatherings always have an outcome (new job found, inspiration, new collaboration). No one has really chased these outcomes. Until now, in the ESOF I have analysed, I couldn't find a collective

outcome other than the one I am suggesting in my last chapter, the one of building a scientific Europe which is only a suggestion.

I don't go into this identity aspects. It makes science relevant for Europe. I believe there has never been a time where the awareness of the importance of science for European development was so strong, despite the difficulties in many countries that can not afford it, cannot invest. Never a debate was as strong as now about how science could be put into use for economical development. Awareness is there and if ESOF can help broaden this discussion even for a while, as a firework that takes place in a week every two years, then it has contributed to this debate.

Some people think ESOF should become a think tank, produce thoughts and recommendations in between the meetings to make a stronger contribution. That didn't happen until now. Who will do it? EuroScience should be the one to do it.

Trieste is now focusing on getting more eastern European countries involved for the 2020 edition. What's the opinion of EuroScience about this topic?

Vienna got the same idea (even if it didn't win against Turin in the end) as Trieste now, so to create a permanent network. I believe such an opening would be absolutely necessary if you want to keep the European Research Area together because we are seeing it's breaking apart. We had very few contributors to previous ESOF from these countries, practically only from Hungary and Poland and Czech Republic. The main problem for them was money. We had travel grants for these countries in Munich in 2006, but many restrictions in terms of applications.

Raphaela Kitson-Pantano, PhD

Head of ESOF secretariat in Strasbourg, now vice president of EuroScience and member of the Steering Committee of ESOF 2018.

Why is EuroScience not putting in place a proper evaluation after each ESOF event?

The reason why there is no evaluation is due to the way the system is run, the way ESOF is set up. Let's take Italy, Torino as an example. Torino won against Genoa and other cities the right to run the ESOF and they give money to EuroScience to have the right to call their event ESOF. The budget was about 4.5 million euros in total. Part of that money was given to EuroScience as a sort of payment for the trademark. That was about the amount of money EuroScience needs to live on, which is around 150.000 euros a year. EuroScience uses that money to pay staff, do other events but they don't have in their budget to evaluate ESOF. They don't have the money to do it and they don't provide for it. Torino had no interest in doing an evaluation because they would have to pay for it. Those who would be interested in doing an evaluation would be EuroScience but it doesn't have the money, doesn't have the money for it. So effectively, what happened was in 2008, there were five foundations (two in Italy, two in Germany and one in Sweden) and together they decide to give EuroScience a total of 1.6 million over 4 years to set up the headquarters. I was hired for that. My job was to recruit staff and put in place processing meant to avoid that from one ESOF to another they would lose information. I developed a unique logo, a conference management software so that all the participants who had signed up could be contacted for future ESOF edition. Similarly, if you have a central conference software where you have all the sponsorship contacts from marketing and communication, when one edition is over you can forward it to next. I did all that and, to be honest, I did everything that expected from the five foundations. In Torino and Dublin, we couldn't do much because they already set a contract and they were free to do things the way they wanted. My only chance of really getting everything and make something fully functional was the ESOF 2014 edition. And I was there for the negotiation of the

contract, I drafted the contract for the ESOF 2014 and I drafted it in a way that gave the majority of the power to the headquarters: we were in charge of the conference management software, ESOF 2014 had to go through us to be able to make registrations and it wasn't a massive power, just a sustainable development for 2016. The idea was that all the proposals would go through this software so we could have a trace of what was rejected or not. The idea of having a central conference management software was also to prevent people from re-submitting the very same proposal already rejected in the past. It just professionalized the all thing. ESOF 2014 was for me the opportunity to have this all done. The ministry of Denmark was in opposition because if I managed everything from the headquarters, they had less power. They wanted to be able to show their sponsors that they were in charge. It's a power war. ESOF headquarters from one side, saying "this is ESOF and this is how we want to do it", and on the other side you have the city that says "we want to do an ESOF but EuroScience doesn't help with the fundraising, for the contacts, for marketing. It doesn't help for anything." The city gives money to EuroScience but EuroScience doesn't give them anything at all. They have to do everything and so they want to be in control of it all. This issue with Denmark went up to my board and the five people from EuroScience of my board told me "this is not working, the ESOF secretariat is not what we wanted, you need to undo everything you have done". They re-wrote the contract completely at the advantage of Denmark and I resigned the next day. Everything that I did was left in the cupboard. In 2016 nobody was a candidate for ESOF because I left end 2012 and nobody was then doing the job of contacting the cities etc, so finally Gail Cardew who was the head of the Royal Institution convinced Manchester to host it. But of course, we couldn't impose anything to them as they already accepted. ESOF started as a fantastic concept the same on which the AAAS works and the Olympics games work, a coherent business model. The problem is that next to that you have individuals and researchers who don't think that way.

If you had to evaluate an ESOF edition now, what parameters would you pick?

That's very interesting. I was asked by my board to do an evaluation. It was a very interesting task because evaluation can mean something completely different in

different languages. An evaluation for the British can be “did you like the infrastructures, the food, the timing was correct?”. For a French person it can be more related to the contents. The evaluation work is very complicated. What I did was doing two types of evaluation, one was a massive survey sent to all the participants of ESOF 2010, 2008, 2006 and 2004: about twenty questions about ESOF as a general concept, the overall idea of ESOF (as participants in 2004 might not remember the contents specifically). And then in 2012 they did individual interviews with people, qualitative interviews of about half an hour and from these data they made recommendations which were the ones we already knew about when we set up the ESOF hub, things like “it’s a shame there is no coordination between one ESOF and the next”, “it’s a shame there is no communication between various editions” etc. We knew about this but EuroScience people already wanted to dismantle everything we had set up.

Is ESOF still needed? Have the goals changed over time?

I think the first rule of any communication tool is to know who you are talking to. I think ESOF major problem today is that it’s not listening to its audience.

Which is its main audience?

That’s the problem. When it started off there were four programmes: science programme, whose target audience was scientists from all over Europe from all disciplines, the career programme targeting young researchers, the business programme targeting companies and the science in the city targeting the general public. The business programme has never been a success, since the beginning. Always a big fail because they have no idea how to talk to companies. J&J for example, gives 15.000 pounds a year but I know that’s nothing for a big company. Now that I am in a big company, I know that what big companies crave for and what they really want to have is access to researchers.

Here at AXA where I work, as I have a network, I invite researchers from all over the world on a monthly basis to come and talk to people at AXA. I do it because it benefits the company. Now, EuroScience has a network of researchers and I said to J&J “if you want to give us a regular source of income we can provide you with

access to our network” They thought it was a fantastic idea but people from EuroScience didn’t want to do it. Nobody did anything about this.

So the business programme never worked and, little by little, a new programme developed, which is the policy programme to bring policy makers and VIPs at ESOF. The reality is the programme that brings the most money to ESOF is the science in the city programme. A city, a town hall putting money in it, want it to have impact. The most money come from the science in the city, from the local community.

But the core of ESOF was supposed to be the science programme and the problem of that is for it to be a success you need researchers to come. Interdisciplinarity today is still a fight, not so much a fight of ideas, people understand the need to do interdisciplinary studies, but it’s a fight in terms of money. If you are a scientist specialized in genetics and you have three conferences in 2018: ESOF, one in San Diego and the genetics conference in London but you only have money for one. Which are you going to go? There is nothing done to maximise the communication.

The financial security of EuroScience people does not depend on ESOF, their reputation at an international level depends on it so they make sure they don’t get anyone upset as it will ruin their international reputation. There is nobody in the organization who will be personally financially hurt if ESOF doesn’t work.

Do we need an ESOF? As it is today, I am certain it’s no longer required. Nowadays I can go to a different conference every week (I am invited to conferences but also webinars and meeting through Skype) without paying a single ticket. People have understood that making people pay to go to conferences is not a business model that works.

AAAS conference runs every year and it’s not making any money out of it. It doesn’t bring any money in but it’s a business card. It is like a cherry on the cake for the AAAS organization, it’s like a business card for AAAS. AAAS makes money through the magazine, through congresses, ... AAAS is a fully functional company, not an organization as EuroScience, it’s a real company.

I am the most firm supporter of ESOF, don’t get me wrong, I genuinely believe the original concept was the right one. The idea of ESOF is fantastic because effectively there is anything like that at the European level, it gathers people from all over. But the truth is, if you look at Falling Walls in Berlin is way more successful than ESOF

and it's not that different. It doesn't change city, it doesn't showcase the beauty of the city but in terms of mixing and matching people in terms of the contents and the prestige. The ticket was 500 euros, five years later it was 1500 euros. Every year ESOF discusses if 300 euros is too expensive. Every year.

They have understood how to make money. It comes down to the fact of saying: is ESOF a beautiful concept, or is it a business? We have no one funding it right now, for it to work it has to be a business but nobody wants to think in that way, so they are not making it work as a business. It's somewhere in between, therefore it's not at the full potential of that it could be.

ESOF 2020 in Trieste: the main goal will be to open to eastern European countries. Is there any European policy in this direction?

There are two things ESOF has said since 2004: ESOF and EuroScience have to objectives, one is to open to social sciences and humanities and one is to open to the east. None of them happened. According the social sciences, the reason why is not happened is that the majority of the people involved in EuroScience and ESOF are not from the humanities. Every year we make the effort to have someone in the programme committee who is from the social sciences. But if you have one from this field and nine from the hard sciences, it doesn't work. Among the 5 foundations you have one only funding social sciences but again, one among 5.

For the eastern countries, the problem is the following. As the head of the hub, I had many contacts with people from the east (Poland, Russia, Hungary..) and they were very interested but the requirements and expectations of the selection committee were not prepared to shift. If you apply the same criteria to achieve a woman in Europe and in Africa (referred to the L'Oreal foundation awards) you are not going to find anyone in Africa. The ecosystem is different, the funding system is different, the educational system.. Once the L'Oreal Foundations acknowledged that, they targeted the criteria to select a woman in Africa to the ecosystem of Africa. For eastern Europe is exactly the same thing: if you apply the same criteria to western and eastern Europe you are not going to get anyone from the east. But this is what the selection committee does. I don't know any eastern country with a major international research centre, or with a political situation that is stable enough to say

in four year time we are going to have an ESOF. If you want to go to the east you have to be ready to change your criteria.

Professor Gail Cardew

Royal Institution Professor of Science, Culture and Society and Director of Science and Education. She chairs the body that governs the strategic direction of ESOF and selects the host cities – the ESOF Supervisory Board. She holds various international posts in science, policy and education, including a Board Member of EuroScience.

Who is choosing the host city?

The host city is chosen by an ESOF committee made up of five EuroScience Governing board members and five external members who are chosen because of their connections throughout Europe. It's important for us to have that internal EuroScience perspective but also to include people across the community. I am the chair of that group. We collect and we decide on the timelines and on how we are going to promote the call for applications. Then we ask for expression of interest from cities. We used to ask people straight away for full proposals so city would come to us and said they were interested but they would then be asked to write a full proposal and we acknowledge that that can be an awful lot of work and can involve an organization to spend quite a bit of resource and money on actually coming out with a proposal. We were in the situation where we were receiving really wonderfully developed proposals but they were in competition with each other and we felt it wasn't kind of fair. So we changed the procedure slightly, into a two stage procedure where we invite expressions of interest and then as a committee we decide which of those cities we think stand with really good chance of going forward and then we get them to do a bigger proposal.

What parameters are valued the most? Position, candidature, themes, level of research etc?

It's a combination of different things, really. We are looking at several things that have to be in place. The first thing that has to be in place is a really strong Champion, that person has to have the scientific credibility and the influence both at the city level, the region level and the national level to bring credibility to ESOF and

also to help with fundraising at the national level. If there is a bid that doesn't have that kind of strong face, then it's unlikely to be a successful bid. It doesn't really matter for us if the Champion comes from the hard sciences or the humanities. It has to be the right person. Along with that there has to be a sense that the city is well known for science in some way. There has to be a collective of scientist or engineers or researchers, a feeling of science and research within the city. Another ingredient is about the venue: the city has to have a conference venue that will be able to accommodate up to 4500-5000 people plus parallel sessions plus all the things you would expect from a modern conference. ESOF right from the very beginning was firmly rooted in the city and so we don't really like it when the conference venue is ten miles away from the centre. It has to be embedded within the city itself, also because part of ESOF is not just the scientific programme, it's the feeling that it's alongside the science in the city. There are many professional scientists celebrating, discussing and debating science in the science conference but that flows into the whole of the city getting on board with science being at the heart of the city for that period of time.

Italy is the only European country that will host ESOF twice: Turin in 2010 and now Trieste in 2020. Didn't you try to reach all countries first?

We put the call out for applications inviting any city. We don't consider if ESOF has already been in that country and we don't make a specific country come up with a city because it hasn't been there. That's not the approach. We encourage people who never applied before. We've never had one in eastern Europe and we have always wanted one in eastern Europe so we have actively going out to our contacts to say "is there a city..?" but we will never force anyone to apply. It's very much about asking and inviting applications. Once we get the applications we need to make sure that it's got all the right ingredients.

What do you think the main legacy of each edition has been for the host city, for the country?

It depends a lot on the city and on what the city is expecting to get out of it. That can change. In the case of Manchester, they wanted to use it to bring together people

that wouldn't normally have met. There was a wide set of people interested in science education for example and ESOF brought them together as an event, they worked together in a joint project and now they are very close and can build on that legacy of partnership working to do other science education activities in the city. The same with industry. The city itself can use ESOF for this purpose, to strengthen the ties to government for instance, to other places within nationally or internationally. In Dublin, one of the legacies was that they carried on the science in the city program. So it really depends on the city and we are not going to determine what the city carries on as its legacy but it really should think what it wants out of the event.

Did the picture of science communicated through ESOF changed over time?

The biggest thing for me in terms of over time is that we are encouraging more and more scientists are encouraged to think much more broadly about how their work fits into policy and society and not just how it fits within the specialism of your field. You won't get the much broader dimension of how your research fits into wider policy and society. That's what ESOF is meant to do.

Professor Carl Johan Sundberg

Professor of Molecular & Applied Exercise Physiology at the Department of Physiology & Pharmacology at the Karolinska Institutet and Board Member of EuroScience. For a decade the vice-president of EuroScience and the initiator of EuroScience Open Forum.

As ESOF founder, why did you think such a format was needed? Do you think ESOF is still needed today?

Good questions. I think they can be responded in a similar way because I believed at the time that Europe needed to come together in some type of forum to discuss the importance of science and technology and their necessity for development and democracy because Europe I think wants to be a rational corner of the world. That was my basic assumption. For the future of Europe it was essential to have some type of centre for discussion and this is one tentative format, I mean there might be several others. This is what I proposed also because the American counterpart which was AAAS, a long time format that was inspiring. And today, even maybe more than before this is needed due to what goes on politically in the world. So I think somehow it's even an idea whose time has come even more.

Do you think a scientific union can be established before a political one?

I think it should go hand in hand. They are somehow interdependent, the political dimension is, in a sense, the most important one because that's what brings people together and takes away borders etc. but for Europe to be rational and do something valuable for its future and the world, science is needed as a tool.

Are you implicitly including social sciences and humanities?

Absolutely, knowledge in any form including social sciences, hard sciences and technology, yes.

How is the programme of an ESOF edition built?

In two ways: first bottom up which means essentially there are proposals coming in, based on a call and secondly there is gap analysis: what did not come in, what could we do to improve the programme? These are the two main formats and I think this is a good balance.

What are the biggest challenges that ESOF had to overcome over time?

I think it's sustainability in the organization and the platforms so that it can run independent of fluctuations in engaging from whatever city, that has been the challenge. But surprisingly it has survived and continues to be run. My prediction was such that either it fails after two three times because there is no longer an interest, or it will continue for a long long time. But it won't be stable until at the earliest ten years because it needs to evolve, learn from mistakes etc. I would expect that in the mid-twenties it will be stable or it will be shut down. Who knows?

What can you tell me about final evaluations of each event?

It's extremely tricky to look into deep outcomes. I would agree that there must be much more outcome analysis: that's really the deep game. That necessitates scientists and researchers.

Is the partners' interest in ESOF changed over time?

It entirely depends on the country. Some have a strong national support, some had greater difficulties. Stockholm, even if smaller, was probably the most balanced one between country, Europe and others. But ESOF survived and keep attracting interest: enough people feel it is worthwhile.

Are more private companies involved now?

No, it fluctuates a lot. In Stockholm we had companies from the US, Italy, France, Sweden, I think it was the most mixed company funding in that time. Than it became more national I think. I wouldn't say it increased even though we had very long term company involvement (J&J, Nature, ...). It's interesting because I also spoke to European firm companies and they were very sceptical, not sure if the ESOF product

would have succeeded. Instead, J&J within 24 hours were in. Interesting to see some companies understand science needs to be communicated and made visible. The irreplaceable part of ESOF is the scientific programme. If you would take it away, ESOF would become some type of science festival only.

Do you see ESOF only as a European event or do you think it is opening up to an international level?

Oh yes. In Stockholm we had something like 67 nationalities and the non-European element, out of 1800 people attending was probably 300. It was ok but it wasn't dominating. I would say the fraction has maybe maintained but the total number of people coming has also gone up by a factor of two. Many policy people come from many places: China, South Africa, US..as it is an international event with very much a European focus. Like the AAAS which is international but very American.

Why is Italy going to host ESOF twice, while other European countries still haven't?

That's a very good reflection. Of course that's the ideal. But then if you have a strong candidacy from one place and a very weak one from another one, we go for quality and let's say likelihood of succeeding rather than being politically fully correct. Hopefully there will be more east European activity down the line. Proposals we have seen from there are not strong enough yet.

All proposals are evaluated according to the same criteria. Is this why so few proposals have come from the Eastern and Central European countries?

That's a possible philosophy but even if we accepted all the proposals coming from these countries, they would be still very few. We somehow failed in devoting more power to finding and attracting. We need to find and support and each city is struggling. There is limited budget.

Are scientific sessions still not sponsored by privates, as it was in the first editions?

Yes, to my knowledge. Even if private companies have more money and could somehow fund participants.

Do you think the image of science, the perception from the general public has changed thanks to ESOF?

I think so locally. I don't think this has a very large impact on a broader scale but very much locally. It's highly portrayed on the media, it's visible in the streets, so I think it has impact. But we should remember Europe has 500 million people, we have addressed maybe 200.000 in each city.

Where do you see ESOF in the future?

I really look forward to see how we can develop further. Hopefully I'll propose that Stockholm runs again in 2024 (20th anniversary) or 2026.

How did you first come up with the idea of ESOF?

I was elected onto the board of EuroScience in 1998 and I realize we needed to elevate it. It was more of an internal little group of people that wish to do something but whose impact was quite small. I felt we needed to run a bigger event which was more inclusive. I propose the ESOF event to the EuroScience governing board which I was serving on. First people didn't understand what it was going to be about. Then I started gathering forces with Nature, European and Swedish foundations. I went to the European Commission and then I came back with a more solid proposals and then people started understanding. It gradually grew.

We had very little political contacts in Brussels. The European Commission did not trust or fully appreciate the EuroScience initiatives at the beginning because they thought they were in charge of running the European science. It's a scientific community and must have everyone involved and should not depend on Brussel. Therefor we wanted to have this as an independent activity but we wanted their support. They didn't think EuroScience was strong enough. They were lacking in credibility among researchers and scientists. One year later the European commission realized it was happening and suggested we submit an application for

funding, for 1 million euros. But we only applied for 450.000 euros because we didn't want them to dominate this event. That's what we did.

Do they have any voice in the choice of topics for example?

Topics are chosen in respect of societal or scientific challenges. They look the same everywhere in the world. We didn't align them in any conscious way.

Do you think each edition had fully portrayed the scientific identity/background of the host country/city? If so, did it vary a lot from one edition to the other?

Tricky question, beyond doubt there has been a clear "signum" on each ESOF reflecting the profile of the host country/city has (or wishes to have). It has varied by maybe 10-30 %, the rest has been the usual which is common to all Europe (the world?)

Peter Tindemans, PhD

General Secretary and Board Member of EuroScience.

Why EuroScience was founded, what was its original mission?

EuroScience has been founded in 1997 basically because people in Europe have been looking from the early 90s onwards to the AAAS in the US, the American Association for the Advancement of Science. That is a continent-wide north American organization which has existed already for 150 years and which is similar in conception. It's a grassroots science organization. In Europe we had similar organizations in different countries, especially in the UK (the British Association for the Advancement of Science), but in most countries such an organization did not exist. Moreover, since the early 80s with the Framework Programmes, the amount of collaboration in Europe had increased a lot and so people thought they should try to have a European organization of grassroots scientists and people who are interested in science, science journalists for example, to discuss European problems, European opportunities, issues around science in Europe. So in 1997 a founding meeting was organized in Strasbourg, established to see if people would support such an organization and that was the case. There were about 250 people present in that meeting and at that meeting we have discussed the first draft of the statute. So after 1997 EuroScience got going. The purpose has not really changed. It's still an organization of grassroots scientists and we are not an organization focusing on particular scientific fields, it's for all sciences including social sciences and humanities, all countries and it's across the public/private.

AAAS is a proper company, EuroScience is not. Do you think this can be a limit in some respect?

It's definitely a limit. AAAS is a company, they are also the publisher of *Science* and this makes a big difference of course. If you publish such a famous scientific magazine, you earn a lot of money. AAAS is basically a fairly rich organization, much larger than EuroScience is. We have constantly problems in getting sponsors and money for activities. That's different from AAAS.

ESOF started in 2004. Do you think such a format is still needed now?

Even more than in the past. ESOF has evolved. AAAS organized since 150 years also their annual meetings, a wide array of sessions, all sort of topics, keynote speakers, researchers. We decided to organize such a meeting also in Europe. It did not exist. We continued and I think it's safe to say that ESOF has developed into the general science meeting in Europe, not to only discuss science, to showcase advances in various fields of science, but also, which is very much in line with EuroScience objectives, to discuss science and society issues, careers for younger scientists, science to business. I think the best illustration of the importance to build discussions in a platform such as ESOF was the tweet written in Manchester by the European Commissioner Carlos Moedas "this is the best conference I've ever attended", and this is because it's a very informal set of people, journalists, scientists etc.

Did you hear about Falling Walls? What's different in respect to ESOF?

I can't really, as I never attended. I know what it is and I know several people are involved. My impression has always been that Falling Walls is more general in the sense it's not limited to science. ESOF is really about science and all the links science has with policy, society, culture, etc.

The motto changed over time from passion to bridges, from revolution to horizons. Which is the one that most reflects your idea of science?

They all do. We don't choose the motto. It's the Champion who puts forward the suggestions for the motto. We sometimes have a discussion about it, when the English is not very clear for example. The point is the motto is good if you can use it for publicity reasons but in the end ESOF is a very flexible concept and the themes are usually very broad.

Do you think the public image of science has changed over time?

That's definitely true. I think the discussion that we now witness and participate about science is different from fifty years ago. In the 70s we had a major discussion

on DNA and that is a theme that keeps coming back, now we have gene editing, modified food etc. Discussion on artificial intelligence are also not completely new but people see different threats and different opportunities and it's a much more technical discussion as respect to the 60s for instance.

Do you think the perception of science has changed?

On the one hand if you look at opinion pools the European Commission publishes regularly, you see many of the answers are very much the same. On the hand, if you are looking at more specific questions, then you see, I mentioned the example of artificial intelligence, that things are changing. Over all there is, among the general public, on the one hand more awareness of science and also awareness that science has an impact on most dimensions of everybody's life and there is a general feeling science is something for the good of mankind. There are always issues (like vaccinations) but you need to see that against the background of a very positive feeling of people about science in relation to health for example.

The main theme of ESOF 2020 Trieste will be the opening to the East. The same theme was suggested in 2008 by Vienna, then outclassed by Turin. Was society still not ready to discuss the topic at the time?

We have put so much effort in Central and Eastern Europe now because after almost thirty years it's still not a situation where you speak of an easy collaboration with equal opportunities for scientist from eastern and western Europe. We have not been able to attract large numbers of people from these countries and there are very practical reasons for that, one is simply finance. Incomes are lower, it is more difficult for people from a financial point of view to participate in a conference like ESOF. We have tried in the past two or three editions to have ESOF organized in a city in Eastern or Central Europe but it hasn't been possible. People are very interested but it's still an unstable political situation in that part of the Europe. They are all concerned about the fact that, as you start organizing ESOF four years in advance, in those years so much could change in the political situation that it's a great risk for

them. Trieste is now very close to Eastern Europe and we are very happy they did pick this theme.

Professor Andrea Ferrari

Keynote speaker ESOF 2010 Turin. ERC Starting Grant holder, Professor of Nanotechnology and Director of the Cambridge Graphene Centre and the EPSRC Centre for Doctoral Training in Graphene Technology at the University of Cambridge, UK.

What are the main differences you identified between ESOF and a scientific conference?

Clearly ESOF is not a scientific conference, it addresses more the general public for what I have experienced. It's very different from a scientific conference both for the speakers and the topics.

There are all sort of presentations but it's not a conference on a specific topic. Every speaker needs to make an additional effort to address a more general public which can also contain policy makers and other figures.

Which is the proportion of researchers attending an ESOF edition?

I really don't know about this. I have no clue.

How did you come to know ESOF?

I have been invited. I presented the Graphene Flagship, a ten year project.

Have you attended other events during ESOF?

I attended a couple of ESOF editions, Turin and Dublin. The day I was there I have attended other activities, there was an exhibition with many different things, I was interviewed on the radio but I didn't stay longer. I was there only for one day.

In your opinion, is ESOF known within the scientific community?

I think it is, in the sense that when it's organised in a certain location, local scientists are contacted, people involved in big European projects are asked to participate and contribute. In the scientific community I don't think anyone thinks about going there to talk about his latest scientific findings. Scientists and professors go there because

they get involved in the organization of the event in a way or another. Many people attending are teachers and politicians, local people.

Do you personally see ESOF as a networking platform for a scientist?

It is, but I don't think it's the place a scientist goes to present scientific results. From what I have seen, it's most people involved in big European projects or other initiatives (by the European Research Council for example) who attend ESOF. There is a reason to get involved by ESOF, otherwise people do not apply to be there. This, of course, excludes the locals. There are many local people attending. Both in Turin and Dublin, half of the people attending were from the local universities.

During the two editions you have been to, did the scientific identity of the hosting country emerge? Or was it rather the European science being portrayed?

The hosting country has a key role in the organization with a clear aim to portray its scientific identity and showcase itself, also its traditions and culture. It's automatic that most people invited are from the local country.

As an expert, how do you judge the scientific contents presented during ESOF?

It's not a conference where I will go to listen to the latest results in my field. Its target is the general public, politicians, companies. It's very interesting indeed. The most interesting things for me were the scientific contents of completely different fields that otherwise I would never come across. So you listen to things very different from your own field.

Professor Stefano Fantoni

Champion ESOF 2020 Trieste, President of FIT from 2008 to 2011 and from 2016 since now.

The idea of candidating Trieste for ESOF 2020: when was it conceived and who played a role in this?

Pier Paolo Ferrante sent me and Maurizio Fermeglia an email saying the deadline for accepting candidatures for ESOF 2020 had been postponed, so we had the time to candidate Trieste. We were both very excited about the idea. I decided that, due to time constraints, FIT could candidate Trieste itself. To be mentioned, the scientific world in Trieste did not know well ESOF. No one in Trieste was aware about ESOF. Only Ferroni already attended previous editions. I am guilty too, as other scientists, I didn't know ESOF and never attended before.

What aspects did the candidature of Trieste focused on?

I have worked strongly with Ferrante and Bruno Della Vedova. In the dossier of candidature we prepared, we strongly focused on the connection with East and Center European Countries. This idea did not come by chance, as it was explicitly mentioned and recommended in the call. We haven't invented something new. We did something in line with the call. Together with Ferrante we worked on the project proposed in Strasbourg. He could use all his experience with EXPO. As for the themes, I have already built TESI.

What about the idea of proESOF?

We called it proESOF to strengthen the idea we wanted to address a region much broader area than Trieste.

In your opinion, what will the legacy be for Trieste?

We have imagined various forms of legacy: a science centre that could attract people from Eastern and Central Europe, together with the structures already present in the city. A science centre related to Trento. Integrated with all the activities

done for schools by the Immaginario Scientifico. In addition, TESI: it should continue existing as a laboratory of ideas where science and citizens, policy makers talk to each other and meet periodically. We want the Porto Vecchio to really become a “Porto of ideas”.

Which publics should ESOF focus on more?

First of all, people from East and Centre Europe. I think ESOF has had many publics in the past, caring about different audiences: young researchers with the career programme, politics has been involved. I really wish that, as ESOF did not gain great success among scientists, we will manage to make scientists see ESOF as also an important appointment for them, not just for the general public.

I still don't know how: we need to make scientists more aware of the importance of this event. We should imagine some sort of official acts with works of scientists that can be published: maybe the start of a new kind of publishing to make them key players of the game. I would like that what happened to me (that I didn't know about ESOF) never happens again. Europe, I think, really needs a European AAAS. If the US have it, why shouldn't we?

What's the picture of science you would like it will come out from ESOF 2020?

First of all, science as innovation. Science is innovation by definition. I see this aspect very strongly included in the Science to Business programme: the key message here is innovation. How to create innovation? How to show companies they need science to be innovative, how to make scientists understand there can be an application of their research?

You need talented people, able to talk with companies, able to understand their needs. Science as inclusion: in Trieste we have so many centres like ICTP, ICGEB, SISSA which are all inclusive. This is an aspect that must come out trasversally of ESOF 2020. Also, we need to foster scientists' attention to society, which means for them to get involved in ESOF too. At ESOF you can talk to ordinary people, to the general public. This is crucial. If you are able to talk to the general public you can also talk to ministries.

Scientific Europe or European science?

My original idea was that of a European science, more specifically we started talking about a Mediterranean science together with Franco Pratico. A different model of science not linked to careers or number of citations. Science for fun, play, gathering of knowledge that you do in spite of career and everything else. It was not a geographical model. We thought this was still a prerogative of European feeling and mindset, more than American. It could conflict partially with the Science to Business Programme. But I think we should not lose an idea of science more free. The concept of freedom for science, free from the system. I would like a strong debate about this to take place: what is fundamental science for?

True and big steps forward for the human kind are made thanks to fundamental science. I hope scientists will think about questions coming from society and take part directly to discussions and public debates, become politicians, bring their motivations to the people.

Professor Milena Žic Fuchs

Member of the Steering Committee at ESOF 2016 Manchester and now in the Steering Committee of Toulouse. Croatian linguist and full member of the Croatian Academy of Sciences and Arts, she formerly served as the Croatian Minister of Science and Technology in the cabinet of Zlatko Mateša from February 1999 to January 2000. She is Professor at the University of Zagreb.

What's the role of ESOF for society and the scientific community today?

In my opinion, ESOF is very very important for the scientific community. Number one in networking, but networking connected to something else I think is very important, rather two things: you hear and see what the latest is in any disciplines, the latest discoveries etc. and it also enables something which is to me very important and that is multidisciplinary. Initially ESOFs was very much discipline oriented. If you were a physicist you went to the physics sessions, but now this is changing. I think it has to change because we are faced with very important research questions for society and mankind that have to be dealt from a multidisciplinary perspective. For society, one thing ESOF is very good for, the all city is involved. It's like a big festival. You really get science to the ordinary persons. In Manchester, something that I really appreciated, they put great stress on children, school kids. I don't know how many there were but literally a couple of thousands of children of different ages, taken to various scientific spots, to places where experiments happened etc. This was very well organized.

And do you think this change is related to different ESOF programmes or to a different sensibility of participants?

The programme is changing but this is the result of where research is going in general. I am a member of the Lamy group that set the state for FP9. It's a very short document that is the base of how FP9 will look like and multidisciplinary is a key feature.

What has been the role of humanities in the past editions and how did it evolve over time?

Well, I attended all ESOFs except the one in Copenhagen. In the beginning there was practically no social sciences and humanities, practically nothing. Now they are there in greater quantity on their own but also, if you look at the Manchester programme, you will see poetry together with physics etc. Now they play a much more prominent role, maybe still not enough but prominent. One place where they play an exceptionally important role is research infrastructure and I know for a fact that now in Toulouse we are having a couple of sessions on infrastructures of different kind, which includes SSH as well.

What is different in ESOF from common science festivals?

The main difference is the enormity. The number of researchers and people attending is huge. One of the problems for me, for instance, is that at the same time you have four or five sessions all interesting, I had a difficult time in deciding where to go and what to miss. ESOF is huge. Another aspect: great emphasis is placed on the press and PR in general. A lot of TVs, journalists. This is very good for society because society has to be included in what is going on in research. This attention that press has been giving to different ESOF editions is very impressive. The other thing that makes them different from other festivals are the names of the speakers: you get a number of Nobel laureates. This attracts people greatly.

What role those countries played in past ESOF editions? What's planned for the future?

This is, unfortunately, one of the negative sides of ESOF. The way I see it, because I come from one of these countries. People, I mean researchers in these countries are not even aware that ESOF exists, what happens at ESOF.

Isn't it also a common situation in western European countries?

Maybe, but here it's worse, believe me it's worse here. If you go, I don't know, to the Netherlands, you can find people that have heard about ESOF at the university for instance. Here, practically when I say I'll be in Toulouse for ESOF, they all ask me

“what is that?”. It is going to be slightly better in Toulouse. From what I have seen from the programme at this point, at least some of these countries (EU13) is a bit more pronounced than usual, but still very very little.

Which is the perception of science in Centre and East European countries?

In western Europe the average citizen is more aware that research exists and it's important in very general terms. I think this is a political issue. In a talk I had with the Croatian premier about six months ago, I told him I followed his political campaign before he was elected and he had not once mentioned research, not once. People are interested in politics. One of the problems is that politicians do not advertise research at all. One thing they do not do here, they do not connect research with economy. This is the link which is missing. Trieste is in a very good location because it's right on the border of what we call EU13 countries. What I hope it will happen, is that they will push invites for more PR in these countries. Not only researchers but I would invite the press directly. That would be a step in the right direction. Changes do not happen overnight, Anna. They always take time but it has to start somewhere. I think that Trieste, because of its geographical location is a great place for this process to begin.

Are there scientific topics you think people will be more interested into?

The topics that from my experience so far have more attracted people are topics that relate to individuals. The Manchester event, for example, happened right after Brexit. Great deal of time was spent on that. The British scientists were very upset, didn't know where things would go how things would develop. That was a major issue. This a one of. Other topics that really get attention of ordinary people have been: ebola, luckily solved by scientists but also by an international effort. Everybody, EU, USA they got the best researchers, pharmaceutical companies and everything. Ordinary people relate to that, they were scared as well. After first isteria calmed down, they were interested in how it was worked out between the big organizations like WHO, European Commission etc. So topics that got the most attention are things like this or, if you have a big discovery: Higgs Boson, gravitational waves..even people not

into particle physics got interested in the whole thing, media all over Europe covered this topic. This is a bit unpredictable.

How is science depicted within a ESOF event? Science as progress, theme for discussion, innovation? Which picture is the most prominent?

All of it, all of the things you enumerated come out. The big thing now is innovation, the Lamy report is very much focused on innovation. This is the problem in Europe, I am not making this up, we spent a great amount of time looking at data and statistics: Europe unfortunately stands behind US, Korea, not to mention Japan, China etc. We have on hand the biggest scientific production in the sense of papers but on the other hand, innovation cannot keep pace. A lot of attention is going to be paid on innovation in Toulouse.

Are events at ESOF all in English or also in the local language?

As far as I remember they are all in English. But that is a very good question but if you don't stick to English and we organize a session, we can have people from all over the world there. English is the *lingua franca* of the current world. Although I am in favor of European languages and it will be a great pity to lose them. I cannot imagine somebody discussing the most famous authors of Italian literature only in English, this is ridiculous.

Professor Fernando Quevedo

Director of the International Centre for Theoretical Physics (ICTP)

ESOF was founded in 2004 on the model of the AAAS conference. As you have recently attended the 2018 edition of the AAAS annual meeting, what is the overall picture of science coming out from that meeting?

It's a huge meeting, there are many things. They emphasize very much the impact of science on innovation, without forgetting the importance of the basic sciences. The two things come together. There were many talks, some on hotter topics than others. Now machine learning and artificial intelligence are dominating.

Is any new science presented at the AAAS meeting by scientists?

I mostly participated in sessions talking about the impact of science on society, international collaborations, the diaspora of scientists to the US, awards for young scientists who then give their own presentations. Where I found it more interesting from my perspective is to meet the different people interested in supporting science from different expertises: policy makers, directors of research centres talking about the future of their own field. I found it useful, it's role is probably to show science for a broader public. There were many concrete debates on different subjects. For example "what's the future of dark matter research"? Nobody will present their latest paper but experts can tell you what's going on, it's very informative to have a broader perspective about the field. As a young researcher I would not go to learn about my own field, for that there are other conferences. This is to get a broader perspective on what is going on in different fields and the vision of the experts.

And are there private companies represented?

Yes, definitely. There is a big presence of publishing companies for example.

Have you ever attended an ESOF meeting?

Unfortunately not. I was invited to the July one in Toulouse.

Do you think scientists are more willing to address the general public today than in the past?

I think so. One way to measure it is to look at the popular science books which have been written more and more. There is more space for science in the media, people are curious about it. Especially when things touch the society but also issues about more philosophical questions. Figures like Stephen Hawking have the great merit to have brought science closer to the public. It's hard to quantify how many people are now doing science because of him.

Other more trivial things are these TV series like the Big Bang theory have played an important role. Scientists have become cool, it changed the perception of young generations. For popularizing science we are doing better than before. On the other hand I have to say we, scientists, who often complain about the little appreciation for science and for critical thinking which are at the base of science, but we have to take some responsibility for what is happening. We are the people who use critical thinking we are the experts in this but this has not been perceived or followed in the more general context in the society. We should have done better and we haven't. It's a homework for us to get more involved in promoting scientific vision of the world to the general public.

The official motto of ESOF 2020 Trieste will be “Freedom for science and science for freedom”. Do you think science needs more freedom today?

It's a difficult question, it can be misunderstood. What we mean by “freedom for science” is something very important for me: I always say that every world leader and policy maker agrees now that science is the key for the future. But people do not appreciate that the most important component of the scientific activity are the scientists. Policy makers have this tendency to only concentrate on a part of science, without paying attention to the scientists. And the scientists are investing their entire life in this curiosity-driven activity. If they are forced to do something not stimulating enough for them they will not do science. People miss this point. Scientists are not given enough space. Every scientist would like to have freedom to do his own research. There is this standard issue between basic and applied science. Many people think “who care about basic science? Let's focus on this product”. But they

are completely missing the point: science is a long term activity. To do some good applied science you need a culture of science in your country. Once you have a strong culture of science, applications will come out. Sometimes people just want to jump to the application. They don't see it because it's a long term investment and they are forced by some short term result.

That's my view of the "Freedom for science". We mean to have the freedom to do curiosity driven science.

ESOF 2020 Trieste will look to the Eastern European countries. Which will be the legacy of this event in this respect and is ICTP already involved in some projects and collaboration with these regions?

Definitely. The mission for ICTP is to promote science in every country in the world, especially in the developing countries. The Eastern Europe has been a partner for many of our activities. I will plan to have them even stronger collaborating with us after this event. We could have joint initiatives concentrated in this region. Recently we hosted a meeting where it was proposed to have a light source facility in Montenegro, the meeting was hosted here and it was the opening for them to ask the support of European institutions. We have been involved in SESAME, training people and giving access to Elettra in Trieste.

There are many other initiatives to work with these countries. This event could make our collaboration even stronger and all the region will be involved.

Is the perception of science different in Europe in respect to the US?

Now with all the communication we have, with Internet and so on everything has become more homogeneous. Now everybody has access to the same things. The way of doing science is different: in the US they are more result based, whatever is fashionable people do it. In Europe it's more people concentrate on one type of question. It's good to complement the two approaches.

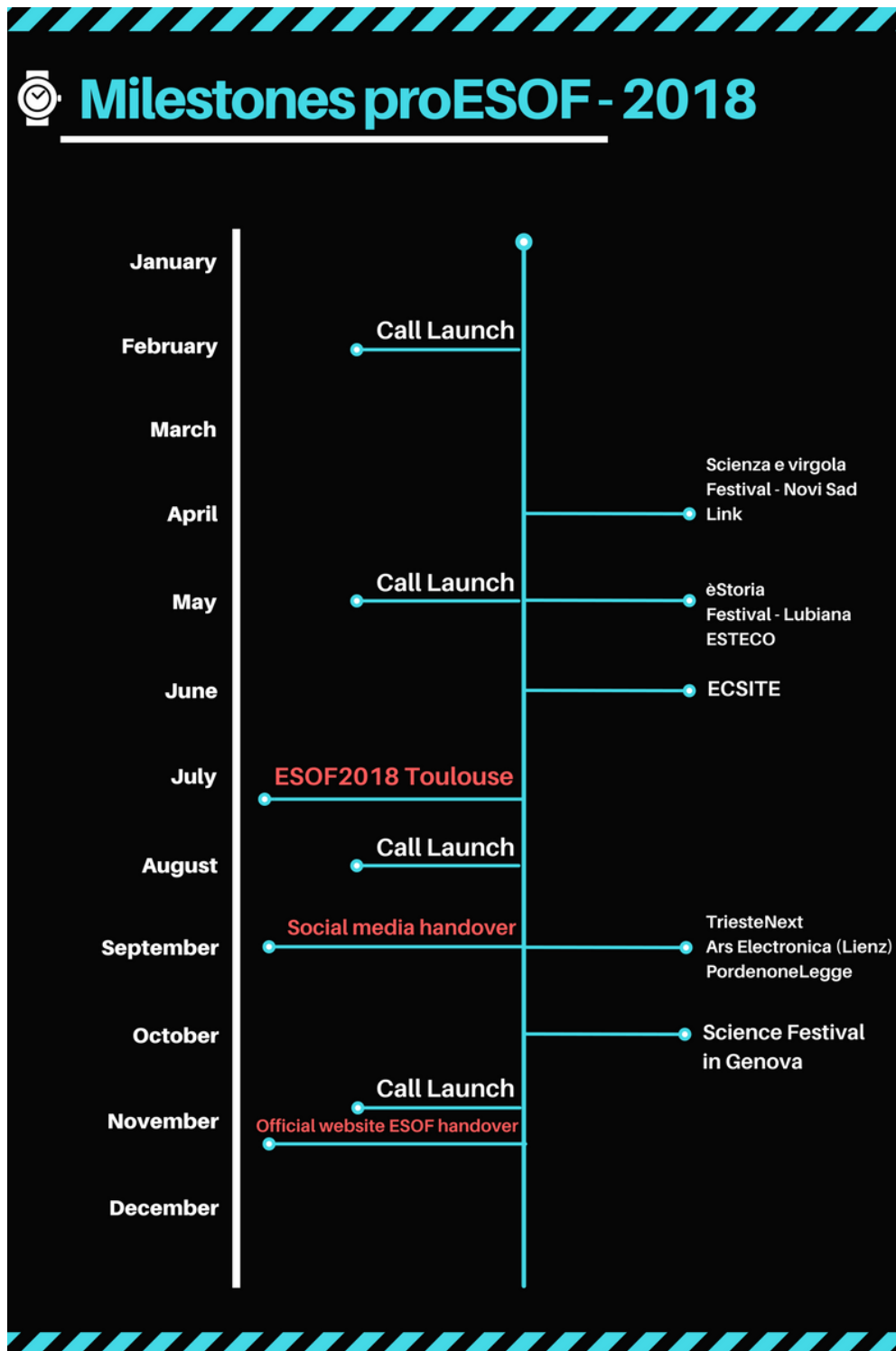
Appendix 3 - proESOF communication plan 2018: Gantt chart, milestones

The following table contains the schedule of the activities contained in the proESOF communication plan and planned for the current year.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Permanent activities												
Press releases												
Press conferences												
Social media activity												
Website												
Coordinated activities with ESOF2018												
Commun. corporate												
Database managing												
Media and agencies relations												
Events												
Scienza & Virgola				X								
Link				X								
Festival Novi Sad				X								
Festival Lubiana					X							

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ESTECO					X							
ECSITE						X						
Trieste Next									X			
Ars Electronica									X			
Science Festival Genova		X						X	X			
Danubio Econ. Forum												
Networking activities												
Media partnership												
Journalists events												
Alpe Adria												
Club Services												

The following infographic summarizes the milestones of the proESOF communication plan for the current year, namely the launch of the calls for proposals (every three months), the promotional events chosen and the handover of the ESOF website and the official social media profiles.



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