News & Views

The unified approach: Meeting the cancer challenges of the next decade

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1. Introduction

Introducing the Presidential session, Julio E. Celis, chairman of the Policy Committee of ECCO and scientific director of the Institute of Cancer Biology at the Danish Cancer Society in Copenhagen, said that the main objective of the session was to provide a unified approach to cancer research in Europe.

“The issue facing us is that no single cancer institution in Europe has the necessary capacity, infrastructure or clinical mass to meet the challenges of translational cancer research,” he told the meeting, adding that there was a need to move from regional or national collaborations to continent wide collaborations.

The challenge, he said, is to get all stakeholders to work together “in unison” at both the scientific and political levels. “It’s also necessary to ensure that patients remain the motivating force for cancer research in Europe,” he said (Figure 1).

In 2004, EU Research Commissioner Philippe Busquin urged the cancer community to identify major priorities for cancer collaborations and make recommendations on how to improve the situation. One result was EUROCAN + Plus, funded by the sixth Framework Programme, which has called for a network of cancer centres for translational research. “It is now providing structure for the European cancer community in a way that has not been possible before,” said Celis (Brown, 2009).

In order to meet the challenges of the next decade ECCO plans to hold yearly science policy forums, announced Celis. “ECCO constitutes 50,000 oncology related professionals placing the organisation in a unique position to provide a forum to ensure cancer, a major European societal challenge, stays at the top of the health and research policy agenda,” he said.

2. Partnership tackles European inequalities

The main goal of the new European Partnership for Action against Cancer initiative, European Union Health Commissioner Androulla Vassiliou told the Presidential session, is to tackle the inequalities in cancer mortality that exist in Europe, and furthermore to decrease the disparities that exist between the “best and worst” member states.

“The initiative would allow exchange of information and best practice, and help member states prevent and control cancer,” said Vassiliou, adding that future success depends on the joint efforts of a range of stakeholders, including non government organisations, patient groups, researchers, industry, organisations of health professionals, and national authorities across the EU who all share a common commitment to addressing cancer. “To make a real difference for cancer patient’s concrete action will have to be agreed and implemented.”

The goal of the initiative is for member states to have integrated cancer plans, with the intention of reducing the number of new cancer cases in the EU by 15% by 2020. “That would amount to half a million fewer new cancer cases in Europe,” she said.

Collecting comparative data on mortality and other information would allow the identification and promotion of evidence based best practice in prevention and control, and as a consequence such European benchmarking would help identify health inequalities (Figure 2).

Cancer inflicts an enormous burden in Europe, Vassiliou told the meeting, accounting for two out of every 10 deaths in women, and three out of every 10 deaths in men. Furthermore, in 2005 an estimated 17 million disability adjusted life years were lost due to the disease in Europe. “As the population ages the burden is expected to grow underlying the urgency of the need to make every effort to combat this disease,” she said.
The Partnership – which will initially run from 2009 to 2013, aims to support countries in their efforts to tackle cancer by providing a framework for identifying and sharing information, capacity and expertise in cancer prevention and control. By ensuring more synergies in cancer-related activities and actions taken by the member countries, scientific experts, patient organisations and other key stakeholders, it is also hoped, the Partnership will help to avoid scattered actions and duplication of efforts, in an area where resources are limited and expertise fragmented across the Union.

In the field of cancer health promotion, reducing alcohol intakes, increasing physical activity and good nutrition will continue to be addressed. But while health promotion and prevention are essential tools to go forward, she said, the adoption of a healthy lifestyle may not always be enough. “Cancer screening programmes remain high on our agenda since early detection increases the prospect of people’s recovery,” she said.

To this end, the European Partnership for Action against Cancer intends to support the development of a European accredited scheme for breast cancer screening and follow up. “This would enable women to recognise which breast units fulfil European quality assurance standards and identify best practices,” she said.

A comprehensive cancer approach also needs to include cancer research, with recognition of the need for a drive towards more coordinated cancer research across the EU. “We aim for at least one third of all European research efforts to be coordinated by the end of the partnership,” she said.

The launch of the partnership, she said, would be marked by a ceremony in Brussels on 29 September 2009. “I am particularly pleased that patients and survivors will be able to share their personal experience at this event,” she said.

3. Coordinated European cancer research

The current global financial crisis is no time for a break in European research investment, urged Janez Potočnik, the European Commissioner for Science and Research. “Those countries that continue to lead the way and innovate will be in a much stronger position to reap the benefits in the next economic upturn,” he told the meeting in a videotaped address.

Cancer, as one of the major causes of ill health, represents a considerable challenge for Europe, requiring substantial long term action. “After circulatory diseases, cancer is the second most common cause of death in Europe, and responsible for a considerable financial burden on society,” said Potočnik, adding that concerted European action in the field of cancer offers the potential to deliver considerable additional value (Figure 3).

The European Partnership for Action Against Cancer, which will run from 2009 to 2013, would provide a comprehensive approach to all aspects of cancer research, he said, ranging from prevention to translational and clinical research. Cancer research is still mainly conducted at the national level, he said, resulting in considerable fragmentation of efforts across the European Union. The aim of the new initiative will by 2013 be to coordinate one third of all research funding (amounting to around €1.5 billion) across Europe. Potočnik hinted that Joint Programming may provide the right instrument to deal with major societal challenges in Europe.

4. Sweden prepares for cancer increases

Sweden is making good provision for an estimated increase in the number of new cancer cases over the next decade. Setting the scene Barbro Westerholm, a physician and Swedish MP, told the meeting that Sweden was a country with a population of around nine million, which has been estimated to increase by 10% by 2050. “Since the main increase will be in those aged 65 and over, estimates suggest that the number of patients with tumours will double over the next 20 years,” she said,
adding such projections made it imperative for Sweden to produce a national cancer strategy to utilise resources optimally.

To this end, the Swedish Ministry of Health has appointed a special investigator with the remit to come up with proposals for improving dissemination of knowledge about cancer care and prevention. In the field of prevention, specific suggestions have so far included focussing on alcohol, nutrition and sun bathing initiatives.

The problem of increasingly expensive modern medicines is creating a need for priority setting, with national coordination viewed as an increasing priority. There was recognition of the urgent need to develop regional cancer centres alongside university hospitals, with the intention of concentrating knowledge (Figure 4).

In the area of screening, mammography has been recommended for women aged between 40 and 74. “Not offering mammography to women above 70 is a form of age discrimination,” commented Westerholm.

Multidisciplinary case management was recognised as important, she said, with centres taking responsibility in the field of information and training for both primary and complimentary medical care in their region.

Reflecting on 20th century cancer research in Sweden, the investigator felt this to have been characterised by “digging deeper and deeper” within the same discipline, but having insufficient integration across both different subject areas and basic and clinical sciences. “The consequence has been sub-optimal use of research resources, with impaired development of methods of treatment which has had an adverse impact on the population,” said Westerholm. The challenge faced by Sweden was that the size of the research community, she said, has made it impossible to create the necessary critical mass to deliver research in all cancer areas, particularly rare diseases.

“This means that we have to act as part of an international network which includes all the disciplines necessary to innovate in all areas of cancer research,” she said.

Westerholm concluded her talk on the positive note that the Swedish Ministry of Health has just provided an additional €2.2 million to fund further development of their cancer strategy.

5. Coordinating international efforts in cancer genome research, with a particular reference to Spain

Coordinated international efforts, that build on common goals, is the way to conduct cancer research, said Carlos Martinez Alonso. “Lessons learnt from the Gleevec® story in Chronic Myeloid Leukaemia (CML) show that targeting specific molecules offers the way forward to convert cancer from a lethal pathology to a treatable disease,” said Martinez Alonso, who is the Secretary of State for Research at the Spanish Ministry of Science and Innovation. He added that the future of cancer therapy lies in the identification of cancer genes and also the products of these genes.

One of the key challenges facing oncology researchers is that there are more than 200 different types of cancer, “Each with different symptoms, a different disease course and different prognosis. Furthermore, each type of tumour is not a single entity,” he said.

The International Cancer Genome Consortium (ICGC) was launched in 2008 to coordinate a large number of research projects sharing the common aim of elucidating comprehensively the genomic changes that present in many forms of cancer. Initially, 11 funding organisations in eight countries are generating comprehensive, high resolution analysis of genomic changes for eight forms of cancer. The challenge for Spanish researchers, said Martinez Alonso, is to provide knowledge for the diagnosis and therapeutics of chronic lymphocytic leukaemia (CLL). The ICGC, formed in the spirit of international cooperation, is making its data rapidly and freely available to the global research community.

The enormity of the eventual task, said Martinez Alonso, is that 500 individual tumours will need to be sequenced to extract meaningful information about the genetic aberrations associated with even a single type of cancer. “Applied to the more than 200 different known types of cancer, this will
ultimately result in having to repeat the sequencing project 100,000 times,” he said.

“Even a few years ago this would have been beyond the capacity of researchers, but recent improvements in sequencing technology are allowing the project to become a reality.” (Figure 5).

Other initiatives under way in Spain, he said, include the creation of national platform for clinical research, which allows clinical trials to be conducted in 40 different hospitals. “We believe these kinds of platforms greatly enhance the capacity for the national health system to cooperate and help the clinical development of novel cancer therapies,” he said, also highlighting the advances in stem cell based cancer therapy and nanotechnology that are offering a way forward.

In 2007 more than 7.5 million people died worldwide of cancer and more than 12 million new cases were diagnosed. But unless progress is made in understanding and controlling cancer, he said, the number of cases worldwide has been predicted to rise to more than 17.5 million deaths and 27 million new cases by 2050. “The economic returns for cancer research are particularly high, due to the enormous impact that the disease has on human health,” said Martinez Alonso, adding that in the USA it has been estimated that a 20% reduction in the number of cancer cases would result in annual cost savings of $10 billion. “So to join efforts in the fight against cancer not only presents as a moral obligation, but also an economic necessity,” he concluded.

For further information: www.icgc.org.

6. Launch of the European Academy of Cancer Sciences

A new initiative designed to ensure that cancer is top of the political agenda in Europe was launched in the Presidential session. ECCO president Alexander M.M. Eggermont told the meeting that the European Academy of Cancer Sciences aims to rally the European community of scientists, health professionals and policy makers to provide a more unified approach to cancer, providing unbiased advice on matters of policy and priorities (Figure 6).

“We hope it will become an important reference point for policy makers and professionals in the field of oncology research and care, a place where they can go to ask questions and receive suggestions and advice,” said Eggermont, adding that until now the consultation process in Europe has been largely unstructured. “I don’t believe that this is the fault of the politicians, but of professionals because they had not created a body to provide consultation and advice. The result was a very haphazard process giving rise to all different types of directions.”

The Academy will be a virtual body, bringing together a founding group of 115 Academy members with outstanding scientific and academic backgrounds, representing 19 different countries. The process involved selecting 30 experts for their expertise and reputation, who then voted for the other members. The first group of experts includes Nobel prize winners Harald zur Hausen, professor emeritus and recent chair and scientific director of the German Cancer Research Centre in Heidelberg; Sir Paul Nurse, President, Rockefeller University, New York; Sir Tim Hunt, Head of the Cell Cycle Control Laboratory, Cancer Research UK, London Research Institute; Sir Richard Peto, professor of medical statistics and epidemiology at the University of Oxford; and Umberto Veronesi, director of the European Institute of Oncology in Milan.

The founding group also includes members of the ECCO Board and Policy Committee, with Eggermont taking the role of first president of the Academy. Harald zur Hausen will be Vice-President and Ulrik Ringborg Secretary General. Elected membership is a life-long distinction, with the Academy hoping to introduce new blood with the election of up to 50 new members per year. The membership gender balance, Eggermont acknowledged, has yet to be properly achieved, but the Academy hope that this will be a rapidly changing situation.

Initially, the ECCO Policy Committee will flag issues for consideration by the Academy, but as the organisation evolves...
the Academy expects that the questions and requests for information and advice will come from a wider number of venues, including patient organisations, health care professionals, policy makers, and politicians. An ambition is to interact directly with the European Commission and member states about the content of future Framework Programmes for research.

The hope is in future to avoid some of the recent decisions that have had the potential to harm cancer patients and the oncology community, such as the Clinical Trials Directive that greatly reduced the amount of academic clinical research in oncology in Europe, and the Physical Agents (Electromagnetic Fields) Directive, which posed a threat to the continuity of MRI scanning in Europe.

From the outset the Academy will use its collective knowledge and experience to prepare a strategy paper on how to boost cancer research in Europe. The paper, which they hope to have ready by the end of 2010, will look at barriers to research and how these can be addressed, in addition to proposing priorities for action.

When providing advice to different countries for the creation of their national cancer plans, the Academy intend to take an individualised approach. “This will be much like a tailored treatment approach in oncology,” explained Eggermont.

Further information: http://www.europeancanceracademy.eu/.

7. Creating the critical mass of sustainability across Europe

Collaboration between individual cancer research groups can no longer be considered the solution, Ulrik Ringborg, told the session. Instead, large scale collaborations between a number of different cancer research centres are needed.

“Such platforms are vitally necessary to reach the critical mass of sustainability necessary to innovate,” said Ringborg, who is director of the Cancer Centre Karolinska, Stockholm, adding their introduction would help European science to overcome the problem of a lack of critical mass relating to patients in clinical research, biological materials and competences.

Fragmentation in research, funding and regulation is making it difficult to develop effective translational cancer research, with fragmentation largely caused by insufficient critical mass for carrying out complex translational research projects and clinical trials.

A major part of the complexity, said Ringborg, is that cancer is not a single disease, but a large number of diseases with tremendous variability in outcomes. “Even within the same groups of cancer there is tremendous variability,” he said (Figure 7).

Due to the increasing number of subgroups, Ringborg said, researchers now need a wide range of biological samples which are beyond the capabilities of a single institution to provide.

Suboptimal translational cancer research is another barrier. “In order to optimise research we need better bridges between basic and clinical research as well as between clinical research and cancer care,” he said.

If we look at the infrastructure required for modern cancer research we need technical platforms for molecular imaging, pathology, genomics and proteomics that allow identification of biomarkers for patients to be stratified in different ways.

“Furthermore, cancer care and prevention needs to be integrated with research and education,” he said.

In 2008, the directors of 18 cancer centres came together to formulate the ‘Stockholm Declaration’ (Ringborg, 2008) a manifesto stating their intention to join forces in order to reach the critical mass and sustainability necessary to innovate and perform in all areas of cancer research.

The European Commission responded to the Declaration by announcing a call in the 7th Framework Programme with the title “Structuring translational cancer research between cancer research centres in Europe”. In addition there is a call for an ERA-NET on translational cancer research in Europe, which has the aim of strengthening the coordination of national and regional research programmes in Europe.

“We hope this is just the beginning of new cancer research collaboration, and that the Platform will give some structure to European research and prevention and improve the situation facing cancer patients,” said Ringborg, adding that the introduction of such platforms will help to facilitate collaborations with the industry, attract young researchers from all over the world, and retain our talents in Europe.

8. Time for action building European networks

Now is the time to take action, and build networks of excellence for European Cancer Research Centres, Peter Lange, Head of the Directorate General for ‘Life Sciences – Research for Health’ at the German Federal Ministry of Education and Research, told the session. “We need to define the concept, consider the problems that need to be solved and the areas that require additional support,” Lange told the meeting. “Scientists must communicate what is needed, and administrators must help.”

In Europe, he said, research is largely undertaken by the different national bodies, without cooperation or coordination.
Some progress has been made through the EURONET SCHEME, part of Framework 7 on translational cancer research, which is intended to step up the coordination of research activities at regional and national levels. “One task is to develop funding concepts that provide money to support centres, and also to support additional research that is being undertaken by scientists outside the centres (Figure 8).

Offering the example of Germany, Lange said that the Ministry of Health in the Federal Republic has been involved in creating a National Cancer Plan that places emphasis in the area of research. The reason for this focus was that a gap had been identified in the translation of basic science results into both clinical research and practical applications.

“It is a plan to develop concepts to improve important activities in diagnostic therapies across Germany including the idea that basic research results will be transferred rapidly into practice,” he said, adding that particular emphasis had been placed on bringing together basic science researchers from the German Cancer Research Centre at Heidelberg and clinical researchers from various German universities around the country.

The structure being developed in Germany, Lange suggested, might provide a useful concept to be developed further throughout the rest of Europe. The incoming German government, he hoped would develop the concept further.

9. Round table discussion

The Round Table, which was introduced by Michael Baumann, President-elect of ECCO (Figure 9) started with a presentation from Sandy Craine, founder and trustee of the CML Support Group UK, who said that the recent global financial crisis meant patient groups could not continue to work with the same set of assumptions that they had sustained over the past few decades.

Financial difficulties were being further compounded, she added, by the ageing population. Taking the example of the UK, she said that one in three of the population was now aged over 50, and furthermore in this age group 60% of people were aged over 65. “When we factor in the age related disproportionate distribution of the majority of cancer patients I contend that we can never return to business as usual,” she said.

The old concept of universal access of health care for patients, with free delivery at the point of need, now needs to be brought in line with the new concept of finite health care budgets. The challenge facing patient groups over the next decade, she said, would be to act as equal stakeholders in the budget dialogue. “The two things of which I am sure is that we now have finite health budgets and are driven by the sense of ourselves as consumers,” she said.

Sir David Lane, chief scientist at Cancer Research UK, and professor of Oncology at the University of Dundee, Scotland and member of the European Academy of Cancer Sciences, said that the great challenge currently facing academic research was funding the right science. “For me the key issue is making sure that we spend our money in the best possible way, ensuring the integrity and creativity of the scientific presence,” said Lane.

The peer review process, which provides the bedrock of the academic performance, allows for extreme creativity, he said. “It’s based on the lone genius model, where one person identifies a discovery, gets published in a journal, and then gets awarded future research funding,” he said. “While the funding proposal may state that they will look at A, B, C, D, the reality is that they will more likely be following their own leads.”

The new concept of scientists operating in integrated teams, collaborating across different research areas, and working closely with physician colleagues, provides a rigidity that has the potential to stifle creativity.

Career progression was another area for concern. In Britain, for example, the system has made it unattractive for clinically qualified academic researchers to be dedicated to translational research, and furthermore there has been a lack of career progression in academic research, with many 40 year old scientists now stuck as permanent post docs.
"To be successful in improving our control of cancer we have to focus on making sure that we spend our money wisely, and looking at the career structure. The system needs to be adaptable since science changes very fast," he said, added that academics need to be encouraged to become more involved with the pharmaceutical industry. "Above all we need to look more closely at our peer review system to ensure we select excellence," he said.

There is a critical need for international clinical trial collaborations to reach critical mass to accelerate the development of targeted drugs; Martine Piccart told the round table. Piccart, who is president of the EORTC and head of chemotherapy at the Jules Bordet Institute in Brussels, was concerned about both the cost of drug development, and the fact that some patients would not get access to the new treatments.

There was a need, she said, to try to decrease the incredible bureaucracy needed to launch international clinical trials and translational research programmes at the international level.

There are flaws in the system in the fact that clinical trials are primarily funded by the pharmaceutical industry, who is taking all the risks. "As a consequence the design of trials attempts to maximise the chance of new therapies being a winner, which results in increased costs," she said.

"To cut a long story short the only way to move forward is for partnerships between academia, patients' organisations, representatives of regulatory agencies and governments. The pharmaceutical industry should not be alone," she said.

We are currently witnessing a dynamic change in cancer research Marco A. Pierotti, President of the Organisation of European Cancer Institutes (OECI) told the round table, adding that to achieve new cures there was a growing realisation that we need to focus on personalised medicine. Issues concerning ownership of biological material taken from patients, he cautioned, have the potential to create a barrier for the exchange of material for research. Furthermore, he expressed concerns that the growing requirement to profile tumours would increase costs.

The OECI which was established in 1977, he said represented the first European organisation of cancer research centres, bringing together 70 different research centres in Europe.

The fragmentation of oncology in Europe is leading to a situation where oncology stakeholders in each member country are not speaking with a unified voice, Thomas Tursz, General Director of the Institut Gustave Roussy in Paris told the round table.

The current problems, he said, relate to the history of oncology in Europe. "Oncology is a relatively new discipline, where the focus has yet to be clearly defined, a fact that is creating a lot of confusion in every country as well as in clinical organisation in Europe. It is also contributing to the perception that basic research and drug development are not progressing at the same pace."

The fact the public can read about enormous projects, yet only see slow changes in the treatment of patients is leading to tensions between both patients and oncologists and between politicians and the hospital system. "Many react by questioning if research is really useful, asking whether there is a point in funding such projects when progress is so slow to reach clinical practice," he said.

The EC, he said, has an important role to play in defining translation as the step bridging the gap between basic and clinical research. "A consortium of comprehensive cancer centres is the only way ahead for coordinated progress across Europe, and to provide a strategy for continuity from bench to bedside."

The EC, he said, will need to agree on a transparent, professionally assessed peer review system that should be based on excellence.

Otmar Wiestler, Director of the German Cancer Research Centre in Heidelberg, speaking from the perspective of National Cancer Research Centres, commented on the great enthusiasm he had observed among both basic and clinical
researchers about progress being made at the European level. Wistler identified three structural elements required for change to bring the process forward.

Interdisciplinarity he said would need to involve both national and international collaborations, but there should also be collaborations within each centre between different disciplines. Secondly, researchers would need to identify targets and consider how these would translate into drugs. Finally, the process would require additional financial resources. “It’s going to be more expensive, but it’s going to be money well spent,” he said.

Talking from the industry perspective, Karl Ziegelbauer, Vice-President of Oncology Research at Bayer Schering, Germany, said that currently there were more than 800 new compounds in development worldwide for treating cancer. For effective coordination between industry and academia, he said, novel ways of working together needed to be devised. One such approach was the Innovative Medicines Initiative (IMI), a public private partnership between the EC and the European Federation of Pharmaceutical Industries and Associations (EFPIA). The initiative, which has €2 billion funding, is intended to make the European drug development process more efficient and to bring medicines faster to the market.

10. Questions

In answer to a question about how the European Academy would reflect differing views, Lex Eggermont said it would be the role of the Academy to consider the diversity of “sound bites”.

It was not immediately necessary, he said, for the Academy to be completely unified in their views; this would come over the course of time with a need to consider common goals and common solutions.

Health professionals needed “to wake up, be engaged and proactive” said Eggermont, to avoid making mistakes in future, such as not participating in discussions about the Clinical Trials Directive.

In answer to a question about how politicians should prioritise different viewpoints, Barbro Westerholm said that it was important that they listened to all the stakeholders, including patient groups.

Peter Lange said that it was vital that the science community came up with one proposal, but that there could be difficulties since the life sciences and medical communities did not communicate well with each other. “The advantage of one proposal is that it would make things easier for politicians to follow,” he said.

David Kerr, University of Oxford and President-elect of ESMO, asked Ulrik Ringborg whether in reality it was realistic to ask organisations who were used to competing to collaborate with each other. Ringborg replied that the research environment had undergone a sea change in recent years, and that there was now starting to be an appreciation of the need to collaborate in Europe in order to be competitive.

Martine Piccart commented that there can be problems with recruiting patients to clinical trials that have been set up to explore issues such as whether shorter duration treatments can be given with established therapies. She gave the example of when she recently experienced difficulties recruiting patients to such a trastuzumab trial.

An illustration of the tremendous challenges ahead, said Piccart, was that although basic scientists have published around 1700 manuscripts on the mechanisms of resistance, none of their findings have been taken up by clinicians to select the patients who will benefit from treatment. “Unless we engage in strong partnerships and change the culture of research we will fail to do anything,” she cautioned.

Ulrik Ringborg detailed the competencies possessed by Europe that he felt should make “us competitive in the international arena,” including strong basic research laboratories, the possibility of biobanks and the well supported technology for bionics. “The problem is that we don’t use these advantages in the optimum way,” he commented. Barbro Westerholm added that good medical record systems allowing patients to be easily followed offered another European asset (Figure 10).

11. Conclusions

Summing up the Presidential meeting David Kerr said that the meeting would go down as a pivotal session in the history of ESMO. “What we have heard this afternoon is a strong sense of unity in vision and purpose, and of recognition of the need for action to collaborate and improve our research efforts,” he said “I have no doubt that if we work together then our collective voice will carry further and echo longer in the corridors of power than it we act alone. It will lead politicians and policy makers to see that we stand united and ready.”

In the past, he said, there had been a sense that the European Cancer Community was fragmented. “That has changed. This afternoon has given us a strong clear sense that we stand together and united,” he concluded.

The message to industry, he added, was that there has never been a better time to invest in European science, while the message to patients and their families was that scientists and clinicians should never forget that all this investment is on their behalf.

Echoing the words of caution voiced by David Lane, he commented: “We must not dilute out quality or deny excellence.”

Referring to Lex Eggermont’s comments about the Clinical Trials Directive he said: “We will make sure that we won’t miss the opportunity to influence the European agenda again.”

References
