

BOOSTING EU-WESTERN BALKAN COUNTRIES RESEARCH  
COLLABORATION IN THE MONITORING AND CONTROL AREA

**BALCON**

*The Gateway to the ICT Monitoring & Control Research in the Western Balkans*

***ADVISORY GROUP FOR EU-WBC RESEARCH  
COLLABORATION IN THE FIELD OF  
MONITORING AND CONTROL***

***OVERVIEW OF THE DISCUSSIONS  
DURING THE 1<sup>ST</sup> MEETING***

**Date:** Monday, 19<sup>th</sup> March 2012

**Venue:** Divani Apollon Palace & Spa Hotel, Athens (GR)



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## BALCON project identity

<b>Title:</b>	<b>"Boosting EU-Western Balkan Countries research collaboration in the Monitoring and Control area"</b> (Contract No 288076)
<b>Duration:</b>	September 1, 2011 - August 31, 2013 (24 months)
<b>Website:</b>	<a href="http://www.balcon-project.eu">http://www.balcon-project.eu</a>
<b>Coordinator:</b>	International Environment and Quality Services North Greece Ltd (Q-PLAN N.G., Greece, <a href="http://www.qplanng.gr">www.qplanng.gr</a> )
<b>Person responsible:</b>	<b>Mr Iakovos DELIOGLANIS</b> +30-2310-411-191 - <a href="mailto:delioglanis@qplan.gr">delioglanis@qplan.gr</a>
<b>Project Overview:</b>	<p><b>BALCON</b> is a Support Action funded by the European Commission under the FP7-ICT programme aiming to:</p> <ul style="list-style-type: none"><li>✓ <i>reinforce the research cooperation</i> between the academic and industrial communities from the EU and the Western Balkan Countries (WBC) for the design, development and implementation of systems and applications for Monitoring and Control (M&amp;C);</li><li>✓ <i>facilitate the preparation of joint R&amp;D initiatives</i>;</li><li>✓ <i>promote the research capacity and achievements</i> of competent WBC research actors; and</li><li>✓ <i>Foster collaboration and bring into contact</i> researchers from EU and WBC.</li></ul>
<b>Consortium:</b>	<ol style="list-style-type: none"><li>1. Q-PLAN North Greece Ltd (<a href="http://www.qplanng.gr">www.qplanng.gr</a>) - Greece</li><li>2. Inno TSD (<a href="http://www.inno-group.com">www.inno-group.com</a>) - France</li><li>3. European Embedded Control Institute (<a href="http://www.eeci-institute.eu">www.eeci-institute.eu</a>) - France</li><li>4. School of Electrical Engineering, University of Belgrade (<a href="http://www.etf.bg.ac.rs">www.etf.bg.ac.rs</a>) - Serbia</li><li>5. Croatian Institute of Technology (<a href="http://www.hit.hr">www.hit.hr</a>) - Croatia</li><li>6. Agency for Electronic Communications (<a href="http://www.aec.mk">www.aec.mk</a>) - FYROM</li><li>7. Faculty of Electrical Engineering, University of Sarajevo (<a href="http://www.etf.unsa.ba">www.etf.unsa.ba</a>) - Bosnia and Herzegovina</li></ol>

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## 1. Rationale

To facilitate dialogue on the EU-WBC research collaboration potential in the broader field of Monitoring and Control (M&C), the BALCON partners set up an "[Advisory Group](#)", which is comprised of experts in the design, development and implementation of systems and applications for Monitoring and Control from both regions. An open discussion was organised during the 1<sup>st</sup> meeting of the Advisory Group (19 March 2012, Athens, GR), where the Advisory Group members had the opportunity to:

- ✓ Discuss on the M&C research areas of common interest and high collaboration potential for both sides; and
- ✓ Exchange ideas on indicative actions to overcome barriers and enhance EU-WBC cooperation under FP7/HORIZON2020 programmes.

The present document outlines the outcome of the discussions.

**Remark:** the list of participants in this meeting is included at the end of this document (ANNEX I), while the short profiles of the Advisory Group members are presented in the BALCON web portal at [http://www.balcon-project.eu/advisory\\_groups](http://www.balcon-project.eu/advisory_groups).



**Participants at the 1<sup>st</sup> Advisory Group meeting**

*First row (from left to right)*

M. Krstic, M. Malek, L. Gavrilovska, M. Stankovski, E. Curkovic, F. Lamnabhi-Lagarrigue, M. Di Benedetto, S. Klessova, A. Konstantellos, I. Delioglani, G. Rakocevic

*Second row (from left to right)*

M. Colnarič, D. Petrovački, Z. Vukić, N. Nosović, Z. Ban, S. Engell, G. Stojanovski, N. Prljača, G. Dimic, D. Ristov, T. Wittig, Z. Đurović,, G. Kvascev N. Filipovic, A. Salihbegović, D. Milicev, K. Pelivanoska, V. Milutinovic

## 2. M&C research priorities in Western Balkans

The participants of the meeting recognised the difficulty of 'labelling' the national research priorities due to the nature of the scientific work in any field, as well as due to the availability and level of detail in relevant national documents. However, it was argued that the (initial) list of priorities (see ANNEX II, Initial 20+ research priorities in WBC identified by BALCON team) is quite long. More specifically, many of the sub-areas could be merged, while a few of them were quite broad. Therefore, it was suggested to shorten the list in order to make it more practical.

Furthermore, the following comments/suggestions were made:

- ✓ **Prof Željko Đurović** mentioned that the R&D priorities highlighted within official national documents are too broad and, therefore, it would be more practical to focus on the research topics described in EU funded programmes, assisting Western Balkan R&D teams to position themselves in the international research landscape.
- ✓ Meanwhile, as **Prof Adnan Salihbegović** pointed out, it would be valuable to broaden the research scope of research in 'Monitoring and Control', including also 'societal systems' (e.g. robotics vs employment), in order to provide scientific evidence for policy making.
- ✓ Furthermore, **Mr Alkis Konstantellos** mentioned that these priorities should be mapped to the Objectives of the FP7-ICT workprogramme for 2013 (when it will be released), in order to support concrete collaboration cases, namely the formation of international research consortia towards the upcoming Calls for Proposals. More over, he suggested to examine the broadening of the scientific scope of the project (e.g. focus on "Complex Systems and Advanced Computing") to better address the scientific orientation of the FP7-ICT workprogramme for 2013.
- ✓ This was also stressed by **Dr Goran Dimić**, as Serbian research institutions tend to focus on research areas where results can be exploited by the European / international industry, given the limited capacity of the national industry.

By taking into account the aforementioned comments, the BALCON team shorten the initial list of M&C research areas in the Western Balkans. The revised list is presented in the table below.

No.	M&C Research Areas	Serbia	Croatia	Bosnia and Herzegovina	FYROM	Montenegro
1	Intelligent systems	✓		✓		
2	ICT for efficient and clean energy	✓	✓	✓	✓	✓
3	ICT for efficient and clean transport	✓	✓	✓	✓	✓
4	Real time and distributed M&C	✓	✓			
5	Modelling and model-based engineering	✓	✓			
6	ICT for Food production and habitat preservation	✓		✓	✓	✓

**Table 1: Overview of the research and development priorities in the Monitoring and Control field in the Western Balkan Countries.**

Source: BALCON consortium, 2012 (<http://www.balcon-project.eu>)

The M&C research areas mentioned above are outlined below:

### 1. Intelligent systems

This priority is focused around systems that can autonomously operate and react in an unpredictable or semi-predictable environment. Research topics include autonomous robots, ambient intelligence, machine learning techniques, and agent and multi-agent systems.

### 2. ICT for efficient and clean energy

This priority is focused around monitoring and control of energy production, distribution, and consumption systems. An emphasis is placed on the development and integration of renewable energy production.

### **3. ICT for efficient and clean transport**

This priority incorporates R&D for efficient and safe transport management. Research topics include traffic management systems, traffic optimization (with the goal of maximising the utilization of the infrastructure), with an emphasis on integrated traffic control and multimodal means of transport.

### **4. Distributed and real time M&C**

The focus is on control and monitoring of complex, networked and dispersed systems. Research topics include development of distributed and ubiquitous algorithms, sensor networks, time-critical operation, and monitoring and control of systems comprising of diverse components.

### **5. Modelling and model-based engineering**

This priority is focused on developing multi-scale and multi-level models and modelling tools for complex problems. Areas with existing capacities include: the medical domain, modelling of energy grids and renewable energy production and transportation modelling.

### **6. ICT for food production and habitat preservation**

This priority is focused around the set of technology dealing with outdoor nature monitoring (sensors and sensor systems), pollution detection and management, and the food production supply chain.

### 3. Indicative actions to improve EU-WBC research collaboration in the field of M&C

During the discussions a number of barriers towards the participation on Western Balkan research teams in EU-funded projects were mentioned. Indicatively the following barriers were outlined:

- ✓ **Prof Liljana Gavrilovska** highlighted the limited national funding in FYROM for research activities, which has a negative impact on infrastructure development and human resources (e.g. young researchers).
- ✓ Similarly, **Prof. Zoran Vukić** pointed out that in Croatia the main part of the funding is aiming to 'operational' activities and not 'research'.
- ✓ However, this is not the case for Serbia, as **Prof Željko Đurović** commented that there is national funding for both basic and applied as well as for multi-disciplinary research activities.
- ✓ **Prof Željko Đurović** mentioned that young scientists are attracted by the private sector or prefer to be integrated into EU based academic institutions, which affects the availability of human resources for research in the academic institutions.
- ✓ **Prof Novica Nosović** referred to the limited interest on behalf of many researchers to 'invest' in EU-funded projects mainly due to the lack of incentives and the extra workload associated with setting up such activities.

All participants agreed that the participation of Western Balkan organisations in FP7 programmes is not satisfactory. More specifically, this funding source has not been adequately exploited despite the existence of a number of 'islands of scientific excellence', which is evident by the international recognition these teams enjoy. Therefore, a number of actions were mentioned to improve the EU-WBC research collaboration especially in the broader field of Monitoring and Control:

#### Rec. #1: Exploit several 'international collaboration instruments' (beyond the ICT Theme under FP7 and HORIZON2020)

Indicative programmes include:

- ✓ **Prof. Zoran Vukić** referred to the various areas of the **FP7-Capacities programme** (e.g. Research for the benefit of SMEs "FP7-SME", Research potential of Convergence Regions "FP7-REGPOT", Research infrastructures "FP7-INFRASTRUCTURES", Activities of International Cooperation "INCO", etc). Although these programmes do not directly support collaborative research activities, they constitute a perfect opportunity to advance research infrastructure, increase 'visibility' and promote scientific expertise of Western Balkan R&D teams and offer EU actors a unique opportunity to 'learn' their potential future research partners.
- ✓ **Mr Alkis Konstantellos**, highlighted the fact that expertise and knowledge in the design and development of systems for Monitoring and Control is critical in other than the ICT research domains, like **Energy, Environment, Transport, Security, etc.** Therefore, it is important that Western Balkan teams consider other **Themes of the FP7-Cooperations programme focusing on these domains.**
- ✓ **Dr. Thies Wittig** mentioned the **FP7-People programme** which facilitates the 'mobility' of scientists. Through bilateral agreements between academic institutions young scientists from one can be integrated and work in the other for a specific period. Such projects provide (among others) financial support for young scientists to increase their collaboration level and build long-term collaborations.

#### Rec. #2: Mobilise and create incentives for young scientists.

Young scientists and PhD students constitute the future scientific capital of a country. Therefore, it is critical to stimulate, encourage and support them to be integrated into international research teams. To do so, indicative actions include:

- ✓ Organising training modules in the Western Balkans focusing on M&C sub-topic(s) led by key experts in the field. As argued by **Dr Françoise Lamnabhi-Lagarrigue**, such 1-week training modules are already been organised by the European Embedded Control Institute (EECI) within the "Graduate School on Control" (more information on these modules is available at <http://www.eeci-institute.eu/GSC2012>). She mentioned that EECI is willing to create one module (integrated in the



School programme) in the Western Balkans focusing on young researchers from the region. This module can be implemented during the first half of 2013, while the scientific topic(s), location and timing are to be agreed among EEI and the region's research community to maximise its efficiency and attractiveness.

- ✓ Organise the exchange of PhD students within the context of bilateral agreements between academic institutions from the EU and Western Balkans. **Prof Maria Di Benedetto**, mentioned that the University of L'Aquila is interested in hosting (and financially support) a number of PhD students from Western Balkans to attend joint courses, which may even lead to joint certificates or degrees in case of joint PhD programmes.

**Rec. #3 Organise brokerage/networking activities to promote the research competencies of WBC M&C actors and support building international research consortia**

Direct contacts among key actors from both regions are of outmost importance to allow discussions on their research achievements, expertise and areas of interest towards building long-term collaborations. Indicative actions may include:

- ✓ **Prof Sebastian Engell** referred to the organisation of scientific workshops (and meetings with local teams) in the Western Balkans, with speakers from the EU. Such workshops should be hosted by local research organisations or any organisation interested/supporting in strengthening the research collaborations with EU.
- ✓ **Dr Goran Dimić** highlighted the importance of organising a workshop in the Western Balkans where invited researchers from the EU industry may share their interests and constraints with the region's research community. Such workshop will enable discussions on the scientific/technological challenges and industry needs and focus on "the loop": research -> development -> innovation -> new research topics.
- ✓ **Prof Mile Stankovski** suggested elaborating a list of SMEs from different EU-27 Member States highlighting their expertise and areas of interest, which could collaborate with Western Balkan research teams towards future FP7 Calls for Proposals.
- ✓ Similarly, **Prof Zoran Vukić** raised the added value of organising a 'presentation day' where research teams and SMEs from the Western Balkans may present their competencies and interests. Such an event could be organised by the BALCON project within the context of the "2012 IEEE Multi-Conference on Systems and Control" (MSC 2012) which will take place on 3-5 October 2012 in Dubrovnik, Croatia.
- ✓ In addition, as pointed out by **Prof Adnan Salihbegović**, the BALCON partners should organise during the MSC2012 conference a match-making workshop, where research teams and SMEs from both regions will have the opportunity to present their ideas for research projects (within the open Topics of each Call) and discuss on preparing/submitting proposals for EU-funded projects.
- ✓ Finally, the practical value of exploiting the BALCON web portal for 'match-making' was raised by **Prof Dragan Milicev**. The creation of a 'meeting point' will allow research teams and SMEs from both the EU and the Western Balkans to promote their competencies and ideas for research projects supporting the creation of research consortia, especially towards the future FP7-ICT Calls. **Mr Iakovos Delioglanis** mentioned that such 'partner-search tool' is currently under development focusing on the R&D actors from the Western Balkans.

In any case, the active involvement of the Western Balkan actors is key to the success, as these activities constitute unique 'supporting/enabling tools' to build collaborations but forming international consortia and preparing research proposals requires 'committed' and 'available' individuals.

**Rec. #4 Ask assistance in preparing proposals for EU-funded projects**

The intensive international competition in EU-funded activities results to very low success rates (in some cases 1 out of 20 proposals are funded!), which in turn discourages inexperienced in proposal writing teams to 'invest' in these activities and try again. It was recognised that even though the coordinator (leading organisation) of a proposal undertakes most of the preparation work, key members of the consortium play a key role in preparing several parts based on their area of expertise. In addition, in order to promote their idea(s), Western Balkan research teams must first 'shape' / adapt it (them) to the objectives of the Call, while accompanied with an initial work plan is critical to attract partners allowing the Western Balkan team to play a key scientific role in the consortium. Therefore, the importance to ask

for support and collaborate with experts in proposal preparation was highlighted, especially during the first phase of idea formation/adaptation to the objectives of the open Call, but also during the proposal writing process (i.e. addressing all evaluation criteria). For example:

- ✓ **Prof Željko Đurović** highlighted the fact that most researchers are focusing mainly on the idea and scientific description/justification of the proposal.
- ✓ **Prof Miroslaw Malek** responded that although the current proposal evaluation system (i.e. three criteria having the same weight) needs to be revised, everyone interested in winning a contract for an EU-funded project must adjust to the existing situation. Therefore, joining forces with experienced in proposal writing will increase the success possibilities.
- ✓ Meanwhile, **Mr Alkis Konstantellos** reminded that a number of researchers from the Western Balkans are already involved in the proposal evaluation process and, thus, attain valuable knowledge on the winning aspects of a proposal. Meanwhile, the project officers responsible for each research topic may offer advice on the scientific orientation of a proposal. Such information may assist the interested team in de-composing the Work Programme to properly adjust their idea to the specific objectives of the Call.

In addition, it was argued that EU-funded Support Actions (like the BALCON project) constitute valuable supporting mechanisms as their aim is to offer assistance both in the initial phase of forming the proposal idea to address the particularities and objectives of a given Call as well as provide guidance to several tasks of the proposal preparation, such as consortium building.

- ✓ For example, **Prof Mile Stankovski** suggested that BALCON partners organise a workshop focusing the forthcoming FP7 Calls, where invited proposal evaluators may offer advice on proposal preparation.

Finally, participation in Information Days organised by the EC allows direct interaction with those officers responsible for a Call and/or research topic(s) to discuss on the context of an idea. For example, during the Information Day 2012 (end of September 2012, Warsaw, Poland) the FP7-ICT workprogramme for 2013 will be officially presented and, therefore, it constitutes a unique opportunity to get insights on the objectives of the next Calls and meet potential partners.

In any case, it was agreed by all participants that **motivated and committed people in each research team play a key role in proposal preparation and increase the possibilities for success.**

## 4. Conclusions – next steps

Overall, the meeting was highly appreciated by all participants, as it offered them a unique opportunity to express their concerns and experiences regarding the participation of research teams from the Western Balkans into EU funded research activities. The valuable comments and suggestions will be taken into account by the BALCON partners in order to 'shape' and adjust future project activities with a focus on the upcoming opportunities for EU supported international collaborative research activities, namely under the FP7-ICT 2013 Calls for Proposals scheduled for January and April 2013 (the FP7-ICT 2013 workprogramme is expected to be released in summer 2012).

More specifically, the BALCON partners are planning the following activities:

- ✓ In-line with the research orientation of the FP7-ICT workprogramme for 2013, the partners will **broaden the 'scientific' scope of the project** promoting the EU-WBC collaboration in the field of "complex systems".
- ✓ Organise a "**Presentation Day**" within the context of the "2012 IEEE Multi-Conference on Systems and Control" (MSC2012, 3-5 October 2012, Dubrovnik, Croatia). The event will focus on the open research topics of the FP7-ICT 2013 workprogramme, focusing on those relevant to the objective of the project. The event will aim at research teams and SMEs from the Western Balkans offering them the opportunity to present their areas of expertise, as well as their ideas for future projects. To do so, the BALCON partners will collect their short profiles and assist them in 'mapping' their idea(s) to the open research topics of the Calls, while special effort will be given to attract leading EU-based research and industrial organisations supporting direct discussion on the formation of research consortia for proposal preparation.
- ✓ Organise a "**training module**" within the EECI "Graduate School on Control" during the first months of 2013 in the Western Balkans. Discussions have already been initiated and most probably the module will be held in Belgrade, Serbia. However, a concrete plan along with the module curriculum will be finalised and released in the coming months.
- ✓ **Disseminate information on other "FP7 funding opportunities" to the WBC research communities.** More specifically, programmes like the **FP7-Capacities** and **FP7-People** support the development / advancement of research infrastructure, while facilitate the exchange of researchers among academic institutions throughout Europe. Therefore, participation in such programmes may help WBC teams increase their visibility and promote their work, while preparing the ground for joint research work within the European Research Area.
- ✓ **Offer customised promotion support to competent research teams from the Western Balkans.** More specifically, WBC R&D teams will be asked to outline their research expertise and map their interests into the FP7-ICT 2013 research topics. These short profiles will be promoted to EU research teams that are preparing proposals through the BALCON team wide European networks, as well as through the EU members of the Advisory Group.

Overall, the Advisory Group is comprised of key researchers with long scientific expertise and wide networks at national and international level. The BALCON consortium will elaborate **an operation plan outlining the Advisory Group activities during the next period**. The plan is expected to be distributed to the AG members within the coming weeks for their comments and suggestions.

## Annex I: participants in the 1<sup>st</sup> Advisory Group meeting

### I.1 EU-WBC ADVISORY GROUP MEMBERS

	Name	Position	Organisation	Country
1	Lamnabhi-Lagarrigue, Françoise	<ul style="list-style-type: none"> <li>Director of Research at the Signals and Systems Laboratory</li> <li>Founder of the European Embedded Control Institute</li> </ul>	National Centre for Scientific Research	France
2	Engell, Sebastian	<ul style="list-style-type: none"> <li>Professor of Process Dynamics and Operations</li> <li>Head of Biochemical and Chemical Engineering department</li> </ul>	Technical University of Dortmund	Germany
3	Malek, Miroslaw	Professor and Chair of Computer Architecture and Communication, Institut fuer Informatik	Humboldt Universitaet zu Berlin	Germany
4	Di Benedetto, Marika Domenica	<ul style="list-style-type: none"> <li>Director of the "Design Methodologies of Embedded Controllers, Wireless Interconnect and Systems-on-chip" (DEWS) centre</li> <li>Director of the European Embedded Control Institute</li> </ul>	University of I' Aquila	Italy
5	Krstic, Miroslav	<ul style="list-style-type: none"> <li>Professor at the Mechanical and Aerospace Engineering department</li> <li>Director of Cymer Centre for Control Systems and Dynamics</li> </ul>	University of California, San Diego	USA
6	Milutinovic, Veljko	Professor at the Computer Science and Informatics department, School of Electrical engineering	University of Belgrade	Serbia
7	Đurović, Željko	Professor at the Signals and systems department, School of Electrical engineering	University of Belgrade	Serbia
8	Filipovic, Nenad	Vice-director	BioIRC Kragujevac Ltd (R&D Centre for Bioengineering)	Serbia
9	Milicev, Dragan	Associate Professor at the Computer Science and Informatics department, School of Electrical engineering	University of Belgrade	Serbia
10	Petrovački, Dušan	<ul style="list-style-type: none"> <li>Professor Emeritus in Technical Sciences</li> <li>Head of Division for Automatic Control and Systems, Computing and Control Systems Engineering department, Faculty of Technical Sciences</li> </ul>	University of Novi Sad	Serbia
11	Goran Dimic	Researcher	Mihajlo Pupin Institute	Serbia
12	Ban, Željko	Associate Professor at the Control and Computer Engineering department, Faculty of Electrical Engineering and Computing	University of Zagreb	Croatia
13	Vukić, Zoran	<ul style="list-style-type: none"> <li>Professor at the Control and Computer Engineering department, Faculty of Electrical Engineering and Computing</li> <li>Head of the Laboratory for Underwater Systems and Technologies (LABUST)</li> </ul>	University of Zagreb	Croatia
14	Nosović, Novica	Associate Professor at the Computer Science and Informatics department, Faculty of Electrical Engineering	University of Sarajevo	Bosnia & Herzegovina

	Name	Position	Organisation	Country
15	Prljača, Naser	<ul style="list-style-type: none"> <li>▪ Professor at the Faculty of Electrical Engineering</li> <li>▪ Vice rector for Research</li> </ul>	University of Tuzla	Bosnia & Herzegovina
16	Salihbegović Adnan	Professor at the Computing and Informatics department, Faculty of Electrical Engineering	University of Sarajevo	Bosnia & Herzegovina
17	Gavrilovska, Liljana	<ul style="list-style-type: none"> <li>▪ Professor at the Electrical Engineering and Information Technology department</li> <li>▪ Head of the Institute of Telecommunications</li> </ul>	The St. Cyril and Methodius University	FYROM
18	Stankovski, Mile	<ul style="list-style-type: none"> <li>▪ Dean of the Faculty of Electrical Engineering and Information Technology</li> <li>▪ Professor at the Institute of Automation and System Engineering, Faculty of Electrical Engineering and Information Technology</li> </ul>	The St. Cyril and Methodius University	FYROM

### I.2 BALCON PROJECT OFFICER AND REVIEWERS

	Name	Position	Organisation	Country
1	Konstantellos, Alkis	<ul style="list-style-type: none"> <li>▪ Project Officer, DG INFSO, Unit G3 "Embedded Systems and Control"</li> <li>▪ BALCON project officer</li> </ul>	European Commission	Belgium
2	Colnarič, Matjaž	Real Time Systems Laboratory, Faculty of Electrical Engineering and Computer Science	University of Maribor	Slovenia
3	Wittig, Thies	Senior consultant	IT Consult GmbH	Germany

### I.3 BALCON PROJECT PARTNERS

	Name	Position	Organisation	Country
1	Delioglanis, Iakovos	<ul style="list-style-type: none"> <li>▪ Project manager</li> <li>▪ BALCON project coordinator</li> </ul>	Q-PLAN North Greece Ltd	Greece
2	Bougiouklis, Kostas	Head of development department	Q-PLAN North Greece Ltd	Greece
3	Klessova, Svetlana	Director	inno TSD	France
4	Rakocevic, Goran	Researcher at the School of Electrical Engineering	University of Belgrade	Serbia
5	Curkovic, Ebonita	National Contact Point for FP7-ICT	Croatian Institute of Technology	Croatia
6	Pelivanoska, Kristina	Project manager	Agency for Electronic Communications	FYROM
7	Ristov, Dejan	Project manager	Agency for Electronic Communications	FYROM

## Annex II: Initial (20+) and final (6) list of M&C research priorities in the Western Balkans

The table below outlines the initial set of M&C research priorities in the Western Balkans identified by the BALCON team after consulting different sources, namely:

- ✓ **official documents** published by the national authorities providing the strategies, the roadmaps, and the key research priorities of national interest;
- ✓ **reports resulting from previous or ongoing EU-funded initiatives**, as well as those **published by miscellaneous independent sources**;
- ✓ the topics defined in the **national science funding systems**, as well as the **EU-funded projects in which WBC institutions participate**;
- ✓ the **recent body of scientific publications originating in the WBC**.

No.	Topic	Serbia	Croatia	Bosnia and Herzegovina	FYROM	Montenegro
1	Automated vehicle guidance			✓		
2	Ecosystem monitoring and integrated control	✓		✓	✓	✓
3	Environmentally friendly transportation		✓			✓
4	Food production process monitoring and control	✓				✓
5	ICT for energy efficiency	✓		✓	✓	✓
6	ICT support for agricultural development	✓		✓		
7	Intelligent systems	✓		✓		
8	Intelligent Transportation Systems	✓	✓	✓	✓	✓
9	Intermodal transportation optimizations support	✓	✓	✓		✓
10	Modelling of transport development		✓			
11	Modern and novel metering techniques	✓	✓	✓		
12	Monitoring, control and integration of renewable energy sources	✓	✓	✓	✓	✓
13	Networked control and monitoring	✓			✓	
14	Process and production control for nano technologies	✓				
15	Real time monitoring, control	✓				
16	Sensor networks	✓				
17	Smart grids, monitoring, optimization, and control of energy distribution systems	✓		✓	✓	
18	Systems and components modelling	✓		✓		
19	Technology of hydrogen production and utilization		✓			
20	Transportation Safety		✓		✓	✓
21	Water management systems					✓

**Table 2: Initial set of M&C research priorities in the for the Western Balkan Countries.**

Source: BALCON consortium, 2012 (<http://www.balcon-project.eu>)

The above list was revised (shortened) by taking into account the comments raised during the meeting, namely "many of the sub-areas could be merged, while a few of them were quite broad". The final list is presented in the table below.

No.	M&C Research Areas	Serbia	Croatia	Bosnia and Herzegovina	FYROM	Montenegro
1	Intelligent systems	✓		✓		
2	ICT for efficient and clean energy	✓	✓	✓	✓	✓
3	ICT for efficient and clean transport	✓	✓	✓	✓	✓
4	Real time and distributed M&C	✓	✓			
5	Modelling and model-based engineering	✓	✓			
6	ICT for Food production and habitat preservation	✓		✓	✓	✓

**Table 3: Overview of the research and development priorities in the Monitoring and Control field in the Western Balkan Countries.**

Source: BALCON consortium, 2012 (<http://www.balcon-project.eu>)

## Annex III: WBC participation in M&C relevant FP7 Themes

### Important notice

The information presented below is based on the CORDIS on-line project database, as well as on the feedback the BALCON partners got from R&D teams from the region. The projects mentioned include both "collaborative research projects" and "support actions". Therefore, the data must be considered as 'indicative' aiming to highlight the general involvement of Western Balkan teams in FP7. An exhaustive analysis of the FP7 projects (type of project, scientific orientation and relevance to the Monitoring and Control field, type of organisations involved, etc) is out of the scope of BALCON.

The Western Balkan organisations' involvement in FP7 programmes were knowledge and expertise in Monitoring and Control area is critical, is relatively low.

FP7 Programmes	Bosnia & Herzegovina	Croatia	Montenegro	Serbia	FYROM	TOTAL
<b>"Cooperation" programme</b>						
ICT	4	17	5	28	9	48
ENERGY	2	11	-	7	6	16
ENVIRONMENT	4	21	3	12	5	32
SECURITY	-	5	1	3	1	8
TRANSPORT	1	14	-	8	1	20
<b>"Capacities" programme</b>						
Research Infrastructures	4	13	6	13	5	41
Regions of Knowledge "REGIONS"	2	5	-	20	1	28
Research Potential "REGPOT"	-	10	2	-	1	13
Research for the benefit of SMEs "SME"	1	28	-	7	6	42
Activities of International Cooperation "INCO"	3	3	3	3	2	14
<b>"People" programme</b>						
"PEOPLE"	1	17	4	16	9	47

**Table 4: WBC participation in key FP7 Themes – (No of projects)**

Source: [CORDIS FP7 projects database](#)

Respectively, the participation in M&C relevant EU-funded projects is outlined in the following table.

	Bosnia & Herzegovina	Croatia	Montenegro	Serbia	FYROM	TOTAL
ICT	2	4	-	14	5	25
Energy	-	2	-	1	-	3
Environment	-	-	-	-	-	-
Security	-	-	-	1	-	1
Transport	-	1	-	3	-	4
Other	4	2	-	-	-	6
<b>Total</b>	<b>6</b>	<b>9</b>	<b>-</b>	<b>19</b>	<b>5</b>	<b>39</b>

**Table 5: WBC participation in M&C related projects (No of projects)**

Source: BALCON consortium, 2012 (<http://www.balcon-project.eu>)