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D4.1: Yearly plan/report of 5G-IT-Hub promotion activities¹

Abstract: This document presents a report on the 1st year activities of 5G Innovation and Technology Hub established at the ICONIC centre as part of the INCOMING project. The deliverable also provides initial plans for 5G-IT-Hub activities during the second project year.

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List of Abbreviations

5G-IT-Hub	5G Innovation and Technology Hub
AAU	Aalborg University
CHALMERS	Chalmers University of Technology
COVID	Corona Virus Disease
DLR	German Aerospace Centre
EU	European Union
FTN	Faculty of Technical Sciences, University of Novi Sad
ICT	Information and Communication Technologies
IPR	Intellectual Property Rights
NSF	National Science Foundation
NTN	Non-Terrestrial Networks
PAWR	Platform for Advanced Wireless Research
UNS	University of Novi Sad

Executive Summary

ICONIC centre (Faculty of Technical Sciences, University of Novi Sad) has an ambition to establish itself as a leading research centre in the domain of wireless communications and information processing domains with applications in 5G technologies in the region. As such, ICONIC should be active not only in research and development activities, but also visible part of 5G ecosystem as a point of education and knowledge sharing. For this reason, as part of H2020 INCOMING, one of the activities is to establish 5G Innovation and Technology Hub (5G-IT-Hub) as part of the ICONIC centre.

5G-IT-Hub will provide local and regional stakeholders opportunity to access information, expertise, training, and best practices related to research, development and business opportunities in 5G ecosystem. Such a hub is needed for knowledge and experience exchange, networking among local and regional academic and industrial community, sharing and exchange of ideas, and stimulating innovation and entrepreneurship in 5G domain. The hub is also necessary to create links between ICONIC and regional ICT-related stakeholders, thus raising ICONIC visibility among wider ICT community. In this deliverable, we provide details on establishment of 5G-IT-Hub and the initial set of activities conducted during first six months of its lifetime, including the plan for activities during the following year.

1 Introduction

H2020 INCOMING project aims to stimulate innovation and entrepreneurship environment in and around ICONIC centre (<http://iconic.ftn.uns.ac.rs/>, Faculty of Technical Sciences, University of Novi Sad) in the domain of 5G technologies that are expected to evolve over the course of the following decade. To provide local/regional point of promotion and knowledge transfer on 5G, at the beginning of month 6 (01.06.2020.) of H2020 INCOMING project, ICONIC centre established **5G Innovation and Technology Hub (5G-IT-Hub)** as its virtual (online/web) entity to support various promotion and networking activities.

5G-IT-Hub will provide local and regional stakeholders opportunity to access information, expertise, training, and best practices related to research, development and business opportunities in 5G ecosystem. Such a hub is needed for knowledge and experience exchange, networking among local and regional academic and industrial community, sharing and exchange of ideas, and stimulating innovation and entrepreneurship in 5G domain.

5G-IT-Hub serves to connect ICONIC researchers with local and regional stakeholders with interest in 5G technologies and applications. The main tasks of 5G-IT-Hub are to:

- promote internal research and development capacity of ICONIC researchers,
- expand knowledge in ICT innovation and entrepreneurship of ICONIC staff members,
- gain experience, knowledge, support from EU partners and access to global stakeholders via their network of contacts,
- connect with local and regional stakeholders and startup community interested in 5G technologies,
- connect with local organizations that promote innovation in ICT.

5G-IT Hub will organize seminars that will be useful both to ICONIC members as well as to wider community. These will include three main seminar series:

- **5G and Beyond 5G Seminar Series**
- **Meet the ICT Industry Seminar**
- **Startup Success Stories Seminar.**

5G-IT Hub will also organize trainings in the domain of Innovation, IPR and Entrepreneurship in ICT domain. The overall goal is to make 5G-IT-Hub, and consequently ICONIC centre, the first choice in the regional map for anyone interested in obtaining know-how in 5G domain. The hub will *create links between ICONIC and regional ICT-related stakeholders*, thus raising ICONIC visibility among wider ICT community.

In this deliverable, we present activities of WP4 realized during the first project year. WP 4 activities started in M6 of the INCOMING project. Thus this deliverable covers the seven-months period from the beginning of M6 (01.06.2020.) to the end of M12 (31.12.2020.) Note that this period is entirely affected by global COVID-19 pandemic, thus original plans related to 5G-IT-Hubs activities had to be changed. Most notable, all of the activities done during this period had to be implemented in online format. In the following, we present detailed set of activities done during the first project year followed by a short plan for the second year of 5G-IT-Hub activities.

2 5G-IT-Hub Establishment and Virtual Presence

WP4 entitled “5G Innovation and Technology Hub: Strengthening the innovation capacity for 5G ecosystem” started in M6 of the project, more precisely, on 01.06.2020. The first task was official establishment of 5G Innovation and Technology Hub (5G-IT-Hub) of ICONIC centre as part of Faculty of Technical Sciences, University of Novi Sad. As a virtual entity, 5G-IT-Hub relies on web infrastructure needed for its activities. For this reason, first steps involved creation of web domain and corresponding web page through which all communication with interested parties will take place. Web domain is established and webpage was up and running on 01.06.2020. marking the beginning of 5G-IT-hub activities.

The format of 5G-IT-hub webpage is similar to the format of the ICONIC centre webpage (<http://iconic.ftn.uns.ac.rs>), but it is considerably simpler, as its main goal is to distribute information about the upcoming events and provide online material of past events organized as part of the hub. Photo gallery will be also included, and where applicable (under the informed consent of the involved parties), we will include video material and powerpoint slides of the seminar lectures. As the hub evolves in its activities, new sections of the webpage will be added to the website, to make it more informative and appealing to general population which it targets. The webpage will be active at the following web address: <http://5ghub.ftn.uns.ac.rs>. The front page of 5G-IT-hub webpage is presented in Figure 1.



Figure 1: 5G-IT-hub webpage (snapshot of the main page)

Initial plans for 5G-IT-hub activities assumed that lectures within all three Seminar Series and training events will be organized physically at the location of ICONIC centre within the premises of the new building of Faculty of Technical Sciences (figure above). However, due to COVID-19 pandemic, that was not possible. For this reason, all the first year events are planned and organized in an online format, and organization of first events is scheduled to coincide with the beginning of semester of 2020/21 at the beginning of October 2020.

To accommodate online events, ICONIC centre established its own account on Webex platform through which 5G-IT-hub events are organized in the form of Webex events and Webex meetings. Besides 5G-IT-Hub webpage, the hub activities are communicated through a number of channels including ICONIC centre and H2020 INCOMING project websites (<https://iconic.ftn.uns.ac.rs> and <https://incoming.ftn.uns.ac.rs>) and social media accounts (LinkedIn and Twitter).

In the following, we briefly describe all the events that took place during the first project year (2020) across all 5G-IT-Hub planned types of events (seminars, trainings, etc.).

3 5G and Beyond 5G Seminar Series

The first and the most important seminar series organized by 5G-IT-Hub is **5G and Beyond 5G Seminar Series**. The original goal of this seminar series was to bring leading 5G industry experts to ICONIC centre and Novi Sad, to present their view on 5G technology and applications. However, due to COVID-19 pandemic, travels and physical events were not possible during the first project year, so the seminar was rescheduled to take place as virtual event. The seminar aims to establish new links with EU and global 5G community and ICONIC centre, and will provide a direct contact between leading 5G experts and local/region ICT companies and stakeholders, thus potentially establishing new business connections.

5G and B5G Seminar 1: Prof. Ian Akyildiz

5G-IT-Hub kick-started 5G and Beyond 5G Seminar Series on 05th of October 2020. with an onward looking talk about future wireless technologies towards 6G. The lecturer was renowned academic member, Prof. Ian Akyildiz, professor emeritus at Georgia Institute of Technology, USA. The information of the presenter at the talk are provided on the following link, including the complete video lecture provided under the speaker's informed consent:

<https://5ghub.ftn.uns.ac.rs/events/5g-and-b5g-seminar-series-prof-ian-akyildiz/>

The event poster for the first lecture is presented via ICONIC centre social media (LinkedIn and Twitter) and distributed through various University of Novi Sad, Faculty of Technical Sciences and global communication channels. It is presented below:



Figure 2: 5G and B5G Seminar Series Lecture 1: Prof. Ian Akyildiz

5G and B5G Seminar 2: Dr Stefano Cioni

Recent interest in Low-Earth Orbit satellite communications and their prospects of integration with 5G cellular networks motivated the second 5G and Beyond 5G Seminar Series talk presented by Dr Stefano Cioni from European Space Agency that took place on 03rd of December 2020. Dr Stefano Cioni is an active researcher in the domain of Non-Terrestrial Networks (NTN) and a member of 3GPP standardization effort for 5G NTN integration. More information about the presenter at the talk are provided on the link below, including the complete video lecture provided under the speaker's informed consent:

<https://5ghub.ftn.uns.ac.rs/events/5g-and-b5g-seminar-series-dr-stefano-cioni/>

The event poster presented on ICONIC centre social media (LinkedIn and Twitter) and distributed through various University of Novi Sad, Faculty of Technical Sciences and global communication channels is presented below:



Figure 3: 5G and B5G Seminar Series Lecture 2: Dr Stefano Cioni

5G and B5G Seminar 3: Ivan Seskar

One of the main aspects of successful 5G research and development is deployment of the state of the art 5G network testbeds and experimentation infrastructure, which was the topic of the third 5G and Beyond 5G Seminar Series talk presented by Ivan Seskar, that took place on 14th of December, 2020. Ivan Seskar is Chief Technologist and Director of WINLAB, Rutgers University, USA, and is program director for COSMOS project responsible for the New York City NSF platform for advanced wireless research (PAWR) deployment. More information about the

presenter at the talk are provided on the following link, including the complete video lecture provided under the speaker's informed consent:

<https://5ghub.ftn.uns.ac.rs/events/5g-and-b5g-seminar-series-ivan-seskar/>

The event poster presented on ICONIC centre social media (LinkedIn and Twitter) and distributed through various University of Novi Sad, Faculty of Technical Sciences and global communication channels is presented below:



Figure 3: 5G and B5G Seminar Series Lecture 3: Ivan Seskar

Overall, out of 8 planned 5G and B5G seminars, three have already taken place during the first 6 months of 5G-IT-Hub activities. All three seminars attracted significant attention and have contributed to increase of ICONIC centre visibility. In the following two years of the project, 5G and B5G Seminar Series will remain one of the major mechanisms for ICONIC centre to bring the leading world renown researchers to ICONIC centre and present lectures on state-of-the-art in 5G technologies. If the situation with the pandemic evolves favourably during 2021., these events will hopefully switch to physical format, as originally planned, instead of online format.

4 Meet the ICT Industry Seminar Series

The second seminar series organized by 5G-IT-Hub is **Meet the ICT Industry Seminar Series**. The goal of this seminar is to present local/regional ICT companies to students, academic and local/regional ICT community. This will include major telco/mobile operators, data analysts, IoT/Cloud solution developers, system integrators, vendors, etc. As for the previous seminar series, the original goal of this seminar series was to bring local and regional ICT industry representatives to ICONIC centre and Novi Sad. However, due to COVID-19 pandemic, travels and physical events were not possible, so the seminar was rescheduled to take place as virtual event.

Meet the ICT Industry Seminar 1: Dragan Novakovic (Cisco)

5G-IT-Hub kick-started Meet the ICT Industry Seminar Series with representatives of one of the leading networking equipment vendor worldwide, Cisco Systems Inc., and their office in Belgrade, Serbia. Cisco engineers provided excellent feedback to 5G-IT-Hub initiative and responded with enthusiasm to provide not a single one, but the initial two lectures for Meet the ICT Industry seminar. The first lecture took place on 07th of December 2020., focused on a very relevant topic on Industrial Internet of Things Security. The first lecturer was Dragan Novakovic, networking expert at Cisco Serbia, and system engineer for security responsible for South-Eastern Europe. The information of the presenter at the talk are provided below, including the complete video lecture:

<https://5ghub.ftn.uns.ac.rs/events/meet-the-ict-industry-seminar-dragan-novakovic-cisco-serbia/>

The event poster presented on ICONIC centre social media and distributed through various other communication channels is presented below:

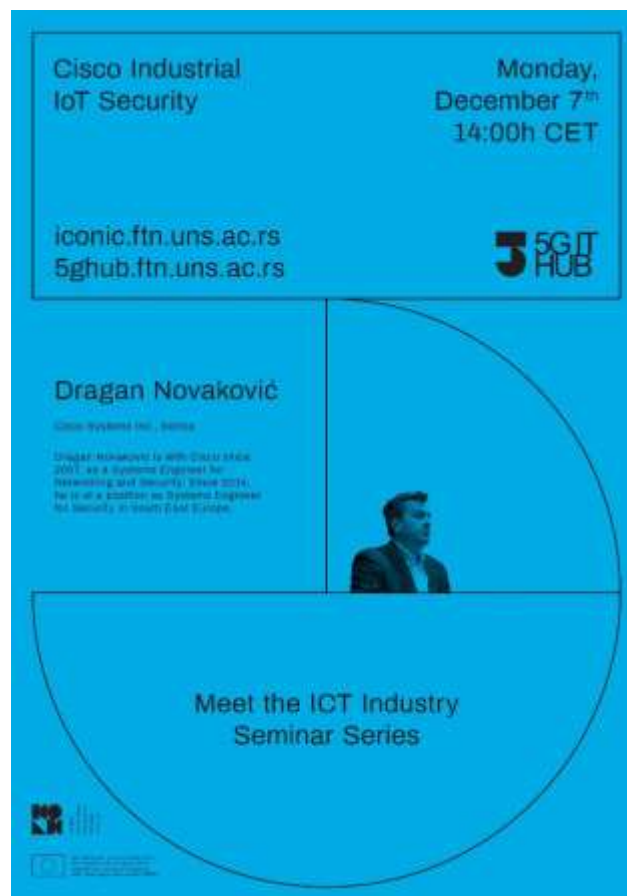


Figure 4: Meet the ICT Industry Seminar Series Lecture 1: Dragan Novakovic

Meet the ICT Industry Seminar 2: Djordje Vulovic (Cisco)

The second seminar within the Meet the ICT Industry Seminar Series continued with the second representative of Cisco Serbia. The lecture took place on 21st of December 2020., topically moving to the domain of 5G core networks with the lecture topic targeting 5G Core and Network Slicing. The lecturer was Dragan Novakovic, a core networking expert at Cisco Serbia. The information of the presenter at the talk are provided on the following link, including the complete video lecture:

<https://5ghub.ftn.uns.ac.rs/events/meet-the-ict-industry-seminar-dragan-novakovic-cisco-serbia/>

The event poster presented on ICONIC centre social media and distributed through various other communication channels is presented below:



Figure 5: Meet the ICT Industry Seminar Series Lecture 1: Djordje Vulovic

5 Startup Success Stories Seminar Series

The goal of this seminar is to establish regular talks and presentations of the most successful ICT entrepreneurs in the region, where they would provide account on the initiation and first steps in development of their startups, the steps that followed to reach the first major success, share their best practices, and engage in discussion with the seminar participants.

The first seminars in Startup Success Stories Seminar Series will be scheduled during 2021. This schedule is synchronized with the first set of trainings that will be organized within 5G-IT-Hub, such as the training on Intellectual Property Rights (IPR), Entrepreneurship, and Fundraising.

6 Summary of 5G-IT-Hub Activities during Year 1

The first year of the project marked establishment of 5G-IT-Hub and initiation of its activities. The project had to deviate from the original plan that was to organize 5G-IT-Hub activities as physical events. Instead, all activities are organized as online events. After the web infrastructure is set up, the activity planning took place, with the goal of arranging initial set of events that will take place during 2020. with the idea to cover different aspects of 5G technology from a wide perspective of both academic researchers and industrial representatives.

The main line of activities of 5G-IT-Hub are Seminar Series: public lectures that serve to inform the general audience about the 5G technology developments. Thus it was natural to kick-start 5G-IT-Hub activities with seminar lectures. The most attractive seminar series on 5G and Beyond 5G initiated the 5G-IT-Hub program, were followed by Meet the ICT Industry seminar series. The beginning of activities is aligned with the beginning of the academic semester at the University of Novi Sad, in order to attract most attention from students.

During 2020, already three 5G and Beyond 5G seminars (out of the total of eight) are organized. The reason for increased number of seminar lectures is that organizing online events is significantly less costly than organizing events physically, thus the original plan will likely be changed with more events added to 5G and Beyond 5G seminar schedule. Similarly, already two out of the planned six Meet the ICT Industry seminars are organized during 2020, and this seminar series is likely to include more lectures than initially planned by the projects (without any additional costs incurred).

The third seminar series on Startup Success Stories will be initiated during 2021. This is aligned with the project Innovation Management Plan (D1.6) and other training activities within 5G-IT-Hub in the form of IPR, Entrepreneurship, and Fundraising trainings which are also scheduled to start during 2021. Among other activities, as the research outcomes of INCOMING collaboration become more mature, 5G-IT-Hub will also serve as a platform for regular organization of demo sessions where a number of showcase demos will be presented as a result of INCOMING project activities.

To summarize, 5G-IT-Hub is established in June 2020. and after first set of events (five seminar lectures) stretching from October 2020 to December 2020, the activities of 5G-IT-Hub attracted significant attention from IT researchers and specialists in the region. LinkedIn page and home page of ICONIC centre and 5G-IT-Hub gained increased visibility as the events have been announced, and very positive feedback has been received from local and regional ICT community. This trend is likely to continue as more events and world-class speakers are added to 5G-IT-Hub events agenda in the following years.

7 5G-IT-Hub plans for Year 2

5G-IT-Hub will continue its activities during 2021. with organization of various events, as planned by the INCOMING project WP4 description. These activities include:

- Organization of at least 3 seminars from 5G and Beyond 5G seminar series;
- Organization of at least 3 seminars from Meet the ICT industry seminar series;
- Organization of at least 3 seminars from Startup Success Story seminar series.

In addition to the seminar series, during 2021. 5G-IT-Hub will start with training events. At least the first training on Intellectual Property Rights will be organized in 2021.

Finally, the activities of showcasing the project results will be initiated during 2021. and planned as a regular and periodical event. The hope is that, with improvement of situation related to COVID-19 pandemic, such events will be possible in physical instead of virtual format. If not, such showcasing of INCOMING results will be done through ICONIC webpage textual and video blog materials that aim to present main project results and ICONIC centre research activity to wider audience.