Schneeberg seen from the Wienerwald, Nov. 2017

Vantage Point

*E*nd-of-year provides an excellent vantage point to assess achievements and shortcomings during the exiting year and to look forward into the future.

Based on feedback from our readers, we can tick the 2017 performance of the Newsletter as successful. Our Honorary Advisory Board is growing and we are happy to have a stronger female representation of the informatics profession.

In this last 2017 Issue we are pleased to introduce our new members of the NL Advisory Board, to brief you on the Russian Virtual Computer Museum and to provide an update on developments related to Big Data and Competences.

Regarding IT STAR, 2017 was rather challenging and efforts were made to build upon successful activities so as to recalibrate the Association to the benefit of its members and the larger ICT community.

In this vein we publish a report on the last IT STAR Workshop and Business meeting in Sofia, and the discussions there.

We take the opportunity to thank you for keeping with us and to wish you and your loved ones all the best for the Season and the New Year.

The Newsletter Team

IT STAR representatives

Austria/OCG-R. Bieber, **Bulgaria**/BAS- I. Dimov, **Croatia**/CITA-M. Frkovic, **Cyprus**/CCS-P. Masouras, **Czech Rep.**/CSKI-J. Stuller, **Greece**/GCS-S. Katsikas, **Hungary**/NJSZT-B. Domolki, **Italy**/AICA-G. Occhini, **Lithuania**/LIKS-E. Telešius, **Macedonia**/MASIT-P. Indovski, **Poland**/PIPS-M. Holynski, **Romania**/ATIC-V. Baltac, **Serbia**/JISA-D. Dukic, **Slovakia**/SSCS-I. Privara, **Slovenia**/SSI-N. Schlamberger

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Editor

New Members – Honorary Advisory Board

Diana Šimić is professor at the University of Zagreb, Faculty of Organization and Informatics where she chairs the doctoral study program in Information Sciences.

Dr. Šimić is a Vice-president of CITA, member of the Steering Board of the CBS, and member of ACM, ASA, CSA and CSMI. She served as Assistant Minister for Informatics at the Ministry of Science and Technology, and Deputy State Secretary at Office for e-Croatia. In 2007 she was awarded the Plaque Informatics of the Croatian Informatics Association for contribution to the development of information society in Croatia.

Maria Raffai is professor at the Chair for Information Science of the Szechenyi Istvan University in Győr, Hungary. Her research extends to information engineering methodology and business process re-engineering improvement methods related to the operation research and decision-making.

Dr. Raffai served as Vice-President of the John von Neumann Computer Society and as Secretary of IFIP. She is Hungarian IFIP TC 8 representative. ∎

MERRY CHRISTMAS AND A HAPPY 2010!

The IT STAR NL Team

EDITORIAL POLICY

This Newsletter maintains a world-class standard in providing researched material on ICT and Information Society activities from the perspective of Central, Eastern and Southern Europe (CESE) within a global context. It facilitates the information and communication flow within the region and internationally by supporting a recognized platform and networking media and thus enhancing the visibility and activities of the IT STAR Association.

The stakeholders whose interests this newspaper is addressing are

- IT STAR member societies and members
- ICT professionals, practitioners and institutions across the broad range of activities related to ICTs in government, business, academia and the public sector in general
- International organizations

Individual articles from the Newsletter may be re-printed, translated, and reproduced, except for denoted copyright protected material, provided that acknowledgement of the source is made. In all cases, please apply for permission to the Newsletter Editor.

Special arrangements for the production and circulation of the Newsletter could be negotiated.

The newsletter is circulated to leading CESE ICT societies and professionals, as well as to other societies and IT professionals internationally. Everyone interested in CESE developments and working in the ICT field is welcome to contribute with original material. Proposals for articles and material for the Newsletter should be sent two months before the publication date to info@starbus.org.

IT STAR Meets in Sofia
Sofia, Bulgaria on 29 September 2017

I**T STAR's** 2017 Workshop and Business meeting were held in Sofia, Bulgaria on 29 September, at the hotel of the Bulgarian Academy of Sciences.

The invitation, and decision of IT STAR's Business meeting in Milan (29 October 2016), was to organize the WS on topics related to data processing towards the end of 2017 as part of the activities related to the Bulgarian EU Presidency during the first half of 2018. The BM in Milan also decided to convene an extraordinary meeting and commissioned its Chief Executive to proceed with the preparations.

Mr. Nedkov conducted a series of consultations in April and May 2017 with member societies from Austria, Bulgaria, Hungary, Italy, Poland, Slovakia and Slovenia. Unfortunately, a venue before September was not identified and the only option was to consider the possibility of holding both events in Bulgaria. An agreement was reached to organize the events at end of September.

The WS was scheduled as a half-day event and three main topics were chosen:

- *IT STAR – Leading regional organization in the ICT field*
- *The Bulgarian research landscape and cooperation in IT and High Performance Computing*
- *Big Data and competences*

***Acad. Blagovest Sendov**, Former Speaker of the Bulgarian Parliament, Past President of BAS and IFIP, was honorary guest of the workshop. He had previously contributed to the AICA – IT STAR Project on Young Talent in Informatics, and to several IT STAR conferences.*

The Three WS Topics:

IT STAR –
Leading Regional Organization in the ICT field

***Plamen Nedkov**, IT STAR's Chief Executive (CE)*

The CE explained that his WS presentation was also intended to assist discussion and decision-making during the Extraordinary BM, which was scheduled immediately after the WS. It aims to outline the specifics, results and benefits of IT STAR membership.

As a regional organization, IT STAR focuses on the particular interests of its member societies. These societies determine its agenda - there is a long history of cooperation and it is not difficult to focus on regional ICT issues as they relate to the wider European and Global Agenda.

Moreover, IT STAR's approach is to bring together players from academia, government, industry and professional ICT

organizations giving an extra multi-layer value to its findings. These are discussed and communicated widely as IT STAR Statements. The communications' outreach is significant and this benefits the IT STAR community.

IT STAR has been successful in developing its conferences series and in having access to a publication base, which further promotes its outreach. It has also been instrumental in supporting the implementation of projects, notably the AICA – IT STAR Survey on Young Talent in Informatics. Mr. Nedkov felt that the benefits of IT STAR's participation could be wrapped up as:

- Regional focus, integrating effect
- Multi-stakeholder input and benefit
- Influential policy statements
- Media outreach
- Cost-efficiency (no membership fees, outstanding performance record)

Bulgarian Research Landscape and Cooperation in IT and High Performance Computing

***Ivan Dimov**, Bulgarian representative to IT STAR and Deputy Minister for Education and Science*

Prof. Dimov outlined the research landscape, including

- The policy domain and main research institutions
- Publication activity areas
- Best performing research organizations, related to citations and patents
- Human resources
- National Strategy for the development of scientific research for the period 2017 – 2030, its three stages of implementation and other issues related to the strategy
- Computational science and HPC

His main conclusions were:

- Bulgarian science should be modernized by 2022 and then gradually reach an European level by 2026 and global level by 2030
- According to the National strategy, Bulgaria could become a regional center for advanced research and development of new technologies. The establishment of research and innovation complexes is foreseen by attracting business partners.

Big Data and Competences

Paolo Schgör, AICA Treasurer and Secretary General

Mr. Schgör outlined the contents of a Data scientist training pilot project and the expected deliverables. He further discussed this vis-à-vis the European e-Competence Framework, seen through AICA's e-CF plus activity.

Developments include pilot training courses at Università di Chieti-Pescara and Università Politecnica delle Marche, in 2018. (Please refer to p. _ for further information on this subject).

Extraordinary IT STAR Business meeting

The workshop was followed by the **Business meeting** focusing on the elements of a new Business Model for IT STAR's future operations, based on a Background paper and Business Model prepared and tabled by the *CE*.

It was agreed that IT STAR has achieved the maximum within its mandate and current model: it operates with no membership fees, with no central budget and financial contributions other than the commitment of hosting societies of annual workshops. The model continues to be attractive but in its current version has no in-built financial mechanism to stimulate activities and to provide for contingencies.

The 'Change' philosophy for 2.0 is *flexibility, efficiency, and incentives* based on successful activities providing benefits for active members. The best way forward is to build upon current strengths and achievements within the following areas:

- Events, publications, incl. the newsletter;
- Ability to conduct consultations and generate statements on topical issues so as to influence decisions;
- Potential in organizing projects.

The strength and specifics of IT STAR provide the fundament for its attractiveness, business model and future operations.

Being <u>Regional</u> professional organization of leading national ICT societies:

- Its activity is an extension of traditional contacts of the countries in the region and based on the commonality of interests of its constituency
- Its agenda is determined by its members and it addresses the experience and needs of its constituency within an EU context
- It provides multi-stakeholder forums involving academia, government, industry and professional organizations
- It supports consultations on programs and organization
- It has gained significant experience in organizing events and publications and has access to a media with good outreach
- Its activities are run in a cost-efficient manner
- It has valuable access to leading ICT-related organizations and experts

The principles for establishing the model were summarized as follows:

- No membership fees but commitment by members to support central operations
- Adopting concrete activities and projects for generating funds
- Rewarding active members – providing incentives for active participation
- Simplicity and transparency

On that basis, the elements and concrete actions were identified. The outcome was then referred for a first review by the participating societies before opening a general call to all IT STAR members. ∎

A possible solution to the Big Data Phenomenon: the Data Scientist

Antonio Teti

Antonio Teti, *Ph.D. is Head of Information Systems & Technology Innovation and IT Governance and Big Data professor at the Economics and Management Degree Course, University of "G.D'Annunzio" of Chieti – Pescara*

According to a survey by the US EMC Data Scientist Study, the most sought-after figure for companies and government organizations in the coming years will be Data Scientist, a "data scientist" capable of transforming "knowledge", an immense universe of information produced daily on a worldwide basis. Its value has already been considered a nuisance for many organizations, especially as regards the Big Data problem. Information production and management is perhaps the argument that over the centuries more than others have fueled the discussion and the clash between humans. Humanists, psychologists and scientists such as Shannon, Wiener, von Bertalanffy, Turing have conducted decades of important media studies and research that have generated significant discoveries in the fields of mathematics, information theory, cybernetics and system theory. With the advent and subsequent development of electronic computers, information has taken on even more, a key role in man's life, thanks to the ability to process, filter and cross the unstoppable amounts of media-fetched data. So analyzing and studying the news as a pregnant element on which to base predictions, analyzes and decisions becomes a matter of primary importance regardless of the sector or type of organization in which the individual is to operate. The breakdown of information, the constant evolution of computer potentials and the development of the Internet network have led to the emergence of a new scientific field in which to study the integration of knowledge, the use of computer systems for processing and refining information to generate an advanced knowledge system, which can be used for a variety of purposes and goals.

The Scenario and Skills of the Data Scientist

As we have understood, the valorization of information, as a basis for building knowledge, is a basic mission for any organization or company committed to measuring daily in a constantly evolving world. The data form the cognitive fulcrum on which the decision-making power of the individual is based, the correct interpretation of the same is essential. According to a study carried out in 2011 by IDC and com-

missioned by EMC, over a few years, approximately 1.8 zettabyte of data (one zettabyte equivalent to 1000 billion gigabytes) will be created in a few years, translated in other words, one could translate as the creation of a true "universe of information". This information overload will require, by 2020, all global companies, to expand the respective computer equipment used for data storage, for a total value of about ten times that of the current one.

Obviously, the news has created a lot of confusion in companies and organizations around the world that have admitted their total unpreparedness in addressing this challenge. The fears of IT managers have also been highlighted by a survey conducted by Gartner, who stressed that continued information growth is the most commonly reported problematic issue by IT infrastructure managers. About 47% of respondents think of the first three critical elements. It should be stressed that among the worries among the IT managers around the planet, there is also the rising energy costs that will have to support businesses to meet the "hunger" of energy that modern Data Center needs. But what is most concerned about the Chief Information Officer (CIO) is the unstoppable data growth, which will make the intelligent management of the information even more difficult. As a result, companies will be forced to recruit scientists, strategic figures who will have the task of transforming this magnum sea of information into a knowledge provider. But what are the peculiarities and responsibilities that should characterize a figure like this? How Can I optimally Manage Huge and Multiple Data Databases?

Among the various specialties, some are considered essential for this singular figure:

- Ability to identify the best algorithms for mining operations;
- Ability to identify the most relevant analysis criteria;
- Ability to develop new data management and data methodologies;
- Ability to interact with web-based semantic applications;
- Ability to design, build, and manage expert teams in gathering and processing information;
- Ability to manage, extrapolate, present and distribute data and transform them into knowledge;
- Ability to identify new types of analytical databases according to the type of data mining used;
- Ability to identify "high-end" analysis tools that are more predictable and useful to organizations (for example, to prevent fraud or to forecast market and competition trends);
- Ability to identify legal issues, depending on confidentiality or confidential information;
- Possession of statistical skills, maths, calculation methods, probability calculations, and digital processing;
- Ability to interact with various open source intelligence (OSINT) applications to collect data and information to be valued;
- Ability to integrate OSINT skills with those of Business Intelligence;
- Ability to interact with decision-makers and the vari-

ous structures in the organization to enable the acquisition of useful (internal) information for the process of processing and to accommodate the demands that arise from the information needs of the company.

However, the skills so far highlighted are not exhaustive. For example, a scientist must be able to carefully examine information coming from different sources of information before deciding what can be judged "useful" for his research. Just as it will have to be able to preliminarily cross the data that comes in its possession (coming from multiple sources), with particular attention to those coming from the Net, such as social networks, blogs, web servers, or online registrations. It must be able to handle more complex data (such as geospatial ones) and use more sophisticated search algorithms, capable of scanning (data mining) immense terabyte data databases in relatively short time and also be able to select the most appropriate business intelligence tool, to perform the analyzes required by the organization for which it works. Although it may appear to be unusual, he must also have a mind-centered mindset and creativity in order to be able to elaborate visions on intelligent management methods of information and even their possible use for purposes other than the original ones. If we consider the need for social media consultants to grow with the birth of the social network age, it is no surprise that within a few years, depending on the imminent data explosion, the scientist will assume the role of the most sought-after professional in the world. Thornton May, a cultural and futuristic anthropologist, describes this particular figure even as "*the hero of future times*." Apparently the multiple skills of the Data Scientist may seem "*overwhelming*", but contrary to what it may sound, it is not so difficult to be able to identify the professionals who are in possession of it. It should be noted that the data scientist has to excel in some aspects of character, such as creativity, curiosity and determination in dealing with new and particularly complex situations. He must feel inspired by the organization and distribution of information that is useful to the organization he works for. His true mission is to turn data into value. For a better understanding of the level of intersection of skills, we resort to a classic Eulero-Venn (or Venn) diagram where the various disciplines (or areas of expertise) intersect with each other by creating the optimal fence in which it develops the data science (figure 1). Different skills, if combined with others, can increase their value in terms of enhancing information, but it is also true that they can also produce results that could be considered "dangerous." In other words, areas of competence need to intersect intelligently in order to produce information-processing processes useful for generating knowledge. The Danger Zone shown in Figure 1 suggests a risk area (danger), which may result from the mingling of personal experiences and expertise in hacking. For example, it is not advisable to include a computer expert with prior computer crimes in a process of confidential information analysis.
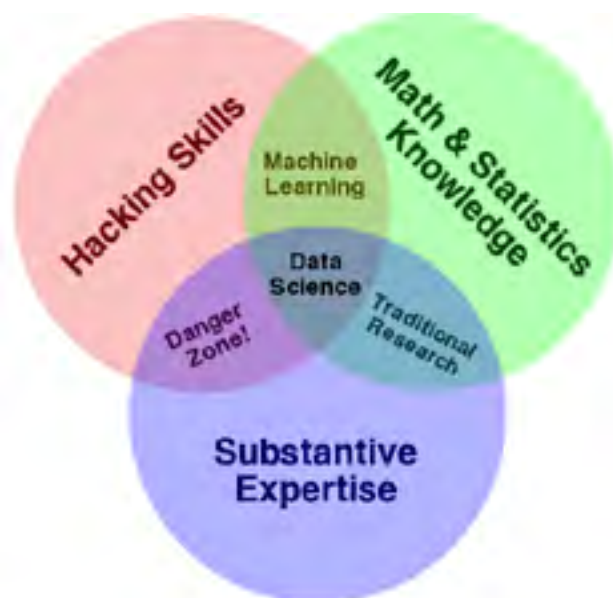

Figure 1 - Data Science in the Venn diagram
(Source: Drew Conway, "Data Science in the U.S. Intelligence Community", Vol.2 N.4, IQT Quarterly Spring 2011)

The hunt for Data Scientist has begun for some months now. Multinational companies such as American Express, from June 2012, are focusing their attention on the creation of expert teams in information management. For the well known US company operating in the financial sector, the recruitment of these professionals seems even "*fundamental to the future*" of the company. Business leaders see the work of these professionals as a central part of "digital transformation" that will invest in the organization in the near future. Indicative is also the annual fee set for this figure: $ 160,000. Even in Russia, attention to the problem of managing the "big data" has not delayed. In this case, the announcement is in February 2012 and concerns the opening of a new research center where data analysis technologies will be developed with particular reference to some sectors such as bioinformatics and energy efficiency. The agreement was reached between EMC and Skolkovo Foundation and the center will be hosted in the Innovation Hub of the Moscow Foundation. The center will develop methodologies of information analysis for other areas, such as molecular medicine, pharmaceuticals, biomedicine, industrial biotechnology, geopolitics, etc.

Some intelligence agencies have also recognized the need to introduce experts in information management. The Israelis have long been preparing data management specialists in their most prestigious and authoritative academic structure: the Israel Institute of Technology in Haifa, better known to the public as Technion. Depending on the close and extensive collaboration with the Israeli Defense Forces (IDF), the Faculty of Industrial Engineering and Management, mathematical models and algorithms are prepared that can allocate "resources" according to probabilistic and strategic risks (Resource Allocation in the Face of Terrorist Threats). These forward-looking models are used to allocate the still limited resources dedicated to defense to the protection of multiple sites that are considered to be a "terrorist risk". Al-

gorithms combine organizing techniques with theoretical game methods, useful for dealing with complex situations based on "imperfect" information and the intentions of the attacker and the defender.

The experimentation launched by the Italian Association for Computer Science and Automatic Calculation (AICA)

As we could understand, the figure of the data scientist today appears to be an irreplaceable resource that public and private companies operating in multiple sectors, and government organizations, will certainly not do without it. And an example of the great interest in this new professional figure of the third millennium comes from China, a country that has long focused its energies on future forecasts in different sectors.

Especially companies, but also some governmental structures, are looking for Chief Data Scientist and Senior Data Scientist. It is indicative that they are looking for groups of "data scientists" who seem to have long been working as a "team" of professionals focusing on refining information. And it is no surprise that in 2007, the Center for Data Science and Dataology has been created in the People's Republic of China, a center for research on theories, data mining, methods and technologies for data analysis in Cyberspace. As evidenced by a rare interview by a professor and researcher of the structure, the research center focuses especially on multi-sector data analysis techniques such as finance, economics, insurance, bioinformatics and sociology. But the most important research project of the Center is the study of the Theory of Data Science. According to Professor Yangyong Zhu, one of the heads of the structure, the term "data science" identifies the science of data in Cyberspace and consists of two key dimensions: the first is to provide a method of investigation that researchers call the Scientific Research Method Data, usable for natural and social sciences; the other is the search for phenomena and data laws. The latter term refers to the complexity of data available in Cyberspace, reflecting human nature and behavior. In other words, it is to identify tangible and credible information from all those who have no direct references to real contexts (better identified as garbage data). According to Professor Zhu, over the centuries, two "data explosions" occurred. The first one with the invention and paper making, the second with the invention of the computer and the Web.

The growing amount of data can no longer be handled with computer systems and analytical methods that date back a few decades ago. Storing information in huge databases, where uninterruptedly structured applications for keyword-based searches are working, no longer make any sense and very little real utility. New techniques are needed to handle the data intelligently. Within a few years, we will witness the emergence of research groups that will focus on data metrics, data algebra, similarity of information, and algorithms that can define the truthfulness of information. These innovations will have considerable effects especially in the field of economic intelligence. In the near future, above all, economic intelligence will represent the scientific field in which all data scientists will come together to produce the "knowledge" needed to safeguard the security and interests of their respective countries. Based on the evidence, AICA has decided to launch a project for the creation of Data Scientist, which provides:

1. The design and implementation of a Syllabus (aligned with e-CF);
2. The implementation of QTB (Questions and Test Bases);
3. A text already produced by Antonio Teti (project leader) and other authors titled "Working with Big Data - The Complete Guide to Data Scientist" edited by Rubbettino Editore;
4. The realization of two training courses for 2018, to be held at the "G.D'Annunzio" University of Chieti-Pescara and the Polytechnic University of Marche respectively:

   a. Master of Science in "Data Science and Economic Intelligence" (University of Chieti-Pescara - Department of Economics);
   b. Master Data Science (Polytechnic University of Marche - Department of Information Engineering)

Consequently, and in order not to be unprepared for the challenges of the near future, it would be desirable to include Data Scientist expertise within the European e-Competence Framework (e-CF) so that the expertise of professionals deal with the management and valorization of information, and thus have all the necessary skills to transform the information possessed. ∎

Partner Publication

∎

RUSSIAN VIRTUAL COMPUTER MUSEUM

Russian Virtual Computer Museum (RVCM)

Vladimir Kitov, Council member

Alexandr Nitusov, Council member

Edward Proydakov, Founding Director

Introduction

In early 2018, the Russian Virtual Computer Museum (RVCM) will celebrate twenty years of existence. During this time it became a notable phenomenon in the cultural and historical of Russia. Currently its pages receive about 1.2 – 2 thousand of visitors daily.

The main purpose of this publication consists in presenting what information can be provided for all who speak Russian and English and are interested in the history of science – first of all computer science and informatics.

The documents presented at the museum display the fact that solving of military problems was one of the computer development mainstreams of the 20th century.

Development of military problems solution algorithms and programming them for the universal computers became the subject of research and development at the leading computer organizations and scientific schools of the USSR, USA and some other countries. Military orientation of the major part of research explains the fact that most of them, both theoretical and applied, were strictly classified in all countries – leaders in computer developments. Thus, IBM

named its IBM 701 computer project a "Defense Calculator". The history of the USSR computer development and implementation in atomic and space-research programs, as well as in creation of its nuclear and missile defense «shield» and reaching military balance with the USA and their allies, is very rich.

No wonder that most of the classified documents on the military applications of Soviet computers are appearing in open publications only now in the 21st century. And they immediately became the subject of the RVCM's closest attention.

The site of RVCM consists of two parts – RVCM in Russian language (www.computer-museum.ru) and RVCM in English (http://www.computer-museum.ru/english/index.php). Quite naturally, the main objective of the museum's activity consists in collecting information on the computer history of the USSR, of contemporary Russia, the former Soviet republics and main facts on computing in the former socialist (East European) countries, with its following systematization and demonstration. The site contains materials both in Russian and in English. Currently its Russian part is much bigger but their translation is already in working process. One can say the RVCM structure consists of three integrated sub-divisions (groups). The first one contains materials in Russian, the second in English and the third group is so-called «Auxiliary buttons line» in the upper-right corner of both English and Russian RVCM versions.

First Steps: A brief history of the RVCM founding and development.

On 30.11.1997 the editorial column of the PC Week/RE Russian edition's chief editor Edward Proidakov published his article «Let us make a museum» (www.pcweek.ru/themes/detail.php?ID=43652). It contains the following slogan, «The time unfortunately runs mercilessly. The people whose life's were closely connected to our national computer development are leaving us. But what do our children know about them? I've come to the following conclusion, we must trace their paths and collect all possible evidences of the leaving computer generations, so that we would be able to establish a museum of computers… Here I am addressing all colleagues with a big request: I ask to consider establishing a Virtual Computer Museum (VCM) not as some routine action of the «PC Week/RE» weekly, but as our common cultural mission, our duty to the generations of readers to come. Creation of the Russian VCM could be only successful if we join our efforts».

One should mention that there were not many volunteers in the beginning. The first stage of the work can be dated by Winter 1998, and Edward Proydakov had to carry the main burden himself. First, the RVCM Council was established which consisted of a few designers of the first Soviet computers. These were: V.V. Prihijalkovski – chief designer of the international (East European) unified computer series

(ES Computers); during many years he was the chairman of the Museum's Council and made a great contribution during organization period, the veteran of programming E. N. Filinov, and famous soviet computer designers, Y. A. Khetagurov, N. P. Brusentsov, V. I. Shteinberg, as well as designers-veterans of the first computers: T. M. Alexandridi, Y. N. Rogachev, A. S. Smirnov, A. N. Tomilin. Veterans of computer programming and engineering - G. A. Egorov, V.V.Shilov, V. A. Kitov, Y. E. Polyak and I. I. Ladygin joined later. Also, the expert on microelectronics engineering and history B. M. Malashevich, computer historian and scientist of the State Polytechnic Museum M. E. Smolevitskaya, computer history expert (including East European computers) and English translator A. Y. Nitusov became Council board members in the earlier 2000-s. The Council worked out the structure of the museum, prepared basic materials on computer families and biographies of the famous scientists and computer designers for the museum's section «Hall of fame».

As the amount of collected materials was increasing its rubrication was extending. During its forming period RVCM received efficient support from the Microsoft & CIS representative office in Russia (General Manager Olga Dergunova).

There are a number of computer museums in the Internet. The main distinctive structural features of the RVCM are:

- *There are big special sections in RVCM with information about the on-board and mobile computers (many military computers among them);*
- *In comparison with other museums, RVCM possesses an extensional on-line collection of articles, books, individual memoirs and other materials on the history of Soviet computing;*
- *RVCM is the leading organizer of regular international conferences and seminars on the Soviet computer and programming history issues;*
- *RVCM also has a section of the history of radio and telecommunications;*
- *Serious attention is paid to the history of analog computers and the history of the Soviet research institutes, centers and enterprises working on computer subjects;*
- *There is a large chronological table in RVCM, which displays the world history of computing and computer related mathematics;*
- *From the very beginning until now the RVCM Council consists mainly of leading computer scientists-veterans and designers who come to regular monthly meetings on voluntary basis (already about 20 years!) to control its materials, to bring some new ones - also from their personal collections, to make expert conclusions, etc., which is the guarantee of the museum contents authenticity.*

RVCM sections in Russian
(www.computer-museum.ru)

Main page of the RVCM contents Russian part visually displays three parallel information columns. The first (left) one shows references on important information blocks: «About Our Museum», «History of the National Computers», «History of electro-communications», «Hall of Fame», «History of the Soviet electronic Component Basis», «Documents and Publications», «Computer Press and Books», «English-Russian computer dictionary». Each of them in turn consists of numerous sub-divisions. Each information block in both columns (right and left) has its own link «All Subjects» connecting users with each of seventeen basic sub-divisions of the Russian version of the RVCM.

For a flavor, we go into more detail concerning the Information block **«History of National Computer Engineering»** - presents the development of the Soviet computers and consists of the following big subdivisions:

Subdivision «Computers in alphabetical indicator» contains a summary list of names of 330 Soviet computers; each name is the link to the material on the corresponding computer.

Sub-division «The first computers» presents the first Soviet computer projects. These are projects developed under scientific guidance of the Soviet computer pioneers, I. S. Bruk (computers «M-1», «M-2», «M-3»), S. A. Lebedev (computers «MESM» and «BESM»), B. I. Rameev and Y. Y. Basilevskiy (the first Soviet serial computer «Strela»), and also electron- tube computers «TsEM-1» and «TsEM-2», designed at the I.V. Kurchatov Institute of Atomic Energy.

Subdivision «»Specialized military-purposec omputers» contains detailed descriptions of special computers used in the Soviet anti-aircraft and anti-missile defense systems; naval computers used on battleships and onboard computers of the air force. There are also descriptions of the missile and military-space computers; computer systems; computing complexes based on computers «Klen-1» and «Klen-2» for space satellites telemetering information and automatic processing; the first soviet military mobile computer complex «Platform»; computers «Lada-2» for submarines and other naval purposes; specialized Soviet computers for space stations and many others. This sub-division is completed with a list of Soviet military computers.

Subdivision «Control computers». Information for 1960-1980s is provided about control computers and computation complexes for management of Soviet industrial enterprises. Controlling computers in the automatic systems for technological processes control, were connected to the sensors, regulators, acting mechanisms, and other means of industrial automatics. The following computers are mentioned here:

- Computers UM-1, M-6000/M-7000, CM1, CM2, CM 1210 (designed at the Scientific Research Institute of Controlling machinery in the town of Severodonetsk);
- ComputerMN-1 NH (designed at Leningrad enterprise «Design bureau №2»);
- Computer «Dnepr» (designed at the Kiev Institute of Cybernetics);
- Computers M7, M-400, SM3, SM4, SM 1420, SM 1800 (designed at the Moscow Institute of Electronic Control Machines – МIЕСМ / ИНЭУМ);
- Control computers designed at the Moscow Scientific Research Institute of Electro-Mechanics.

Subdivision «Universal computers» deals with information about widely implemented computers family «BESM» and other ones, designed at the Moscow Institute of Precession Mechanics and Computer Engineering; large computer family «URAL»; numerous computers of the «ES Computers» series (Soviet-East European analogue of IBM computers IBM/360 and IBM/370; Armenian computers «Aragats», «Razdan», «Nairi»; unique arhitecture computers «Setun»; Ukrainian computers «Kiev», «Promin» and «Mir»; supercomputer family «Elbrus»; military computers «Vesna» and «Sneg»; Byelorussian computers «Minsk» and many others.

Subdivision «Analog computers»: Both in USSR and in other technically advanced countries analog computers (AC) were used primarily for modeling of linear and non-linear dynamic systems in real time mode. Behavior of the systems is described with common differential equations. AC enabled high performance and at comparatively low costs, simple synchronization with various real devices and instruments, simple adjustments and re-adjustments for solving different problems and convenient interaction with users. For all these reasons AC were widely used for both mathematical and semi-natural modeling of rockets and rocket complexes, spaceships, aircrafts, vessels, power producing installations and other devices and objects. Besides that AC machinery was implemented in solving of medical, biological, chemical and other scientific and engineering problems. Analog computers designed by computer pioneers S. A. Lebedev, I. S. Bruk, L. I. Gutenmakher and some others were famous and popular in the USSR. Analog computing devices total about several dozens of types aimed for various implementations.

This subdivision presents in detail the role of leading scientists, scientific organizations, teams and taskforces who contributed to the creation and development of the Soviet analogue computers and computations.

Subdivision «History of semiconductor producing industry development»: Here, a number of Soviet semiconductor production industry development key points are presented. It describes the creation of an original architecture of multiprocessor complexes, so-called «Big Integrated Circuit - BIC», at a research center of the town of Zelenograd

(Moscow suburb) in 1973. At the beginning, 5 microprocessor complexes BIC were designed, which soon after were implemented in new special minicomputers «Electronica NC-1», «Yurisan» and «Svjaz-1», also designed and produced there. In the beginning of the 1980s it became clear that rather powerful computers VAX of Digital Equipment Corporation (DEC) were quite competitive with large mainframes. For that reason, producing enterprises belonging to two (different) USSR ministries launched minicomputers production on competitive basis. Soon there appeared popular in the USSR minicomputers SM-1700 and SM-1720.

There is also a biography of Zelenograd scientist Susanna Madojan, who, in 1949, being a young student, produced the first Soviet semiconductor transistor within just 4 months as her university diploma work. She was doing it almost alone with the only help of her scientific supervisor engineer A. Krasilov. The history of the famous semiconductor producing Leningrad enterprise «Svetlana» also attracts attention.

The last subdivision «Systems and complexes» presents famous automated management systems (AMS) «EGSVC/ ЕГСВЦ», «OGAS/ОГАС», «Elections/Выборы», «Samson/Самсон», ets. The material begins with descriptions of the very first Soviet AMS «Lvov» and «Kuntsevo» implemented at big industrial enterprises.

RVCM sections in English
(http://www.computer-museum.ru/english/index.php)

The main RVCM-English site consists of three columns: divisions, news and persons and articles.

The left column displays indicators of sections, such as «About museum» (brief info about RVCM), «Advisory board» (RVCM Council members' names, photos and e-mail contact addresses), «Contacts» (RVCM official addresses, e-mail addresses of its director and web-master), «Sponsors & partners» (information support) and «Computer dictionary» (English-Russian). The middle column presents current news on computer history, activities of the RVCM and its Council.

The right column is the most informative. It contains three big divisions consisting in turn of information subdivisions. These are: «Hall of Fame», which consists of two big parts «Russian scientists» and «All». Section «Russian scientists» presents sixty-two biographies of the prominent Soviet computer scientists-pioneers, and section «All» is the storage of information about broader circle of scientists both from the former USSR and from other countries.

The second big subdivision on the right is «Articles», with interesting display of about thirty Soviet computer types and families, from the first Soviet computers M-1 and MESM to specialized computers (e.g. «Radon», «Argon», «System Diana») and also various complementary information (from the history of programming languages, the first

SORUCOM-2006 proceedings - Perspectives on Soviet and Russian computing: First IFIP WG 9.7 Conference, SoRu-Com 2006, Petrozavodsk, Russia, July 3-7, 2006 / Eds. J. Impagliazzo, E. Proydakov. Berlin; London: Springer, 2011.

SORUCOM-2014 conference proceedings

SORUCOM-2011 conference proceedings

SORUCOM-2017 conference proceedings

radio-communication technologies, etc.). The readers can also find subdivisions with detailed presentation of various structures, programming machine commands and statements, organization of the internal and external computer memory (ROM and RAM) and various applications of the most popular (in various times) in Soviet computers «Strela», «BESM», «Ural», «Minsk», «M-222», etc.

The third English language section of the right column contains archive of RVCM news practically since the beginning of its work, i.e. from the year 2000.

Scientific Forums

RVCM organizes a number of scientific events and publications, alone or in cooperation with other organizations. One such activity is the series of conferences on the USSR History of Computing and Programming (SORUCOM).

Another activity relates to the archive and the systematization (by authors, subjects and topics) of the first Soviet computer books, reports, conferences theses and proceedings, the USSR Government's directives and other computer science and engineering related historical documents at RVCM. Each week, a group of enthusiastic volunteers headed by the RVCM Council member Vladimir Krivorychenko thoroughly restores and makes scanning of new, often very rare and unique documents, articles, monographs and textbooks.

Currently RVCM posts 10 to 15 archival publications a month on its site. That's rather hard work for the project participants because everything is performed only on voluntary basis and in their free time. In fact, although the collected documentary information is not yet complete to display all significant persons, computers, software and systems, the accumulated volume is already so big that it is necessary to perform its systematization without delay. That is why the RVCM Council pays so much attention to efforts to progress this important initiative.

Computer history represents a big layer in the world's general history of technology and RVCM is a unique phenomenon to be considered in this context as it provides to the world's scientific and cultural communities authentic information about (often unknown outside the countries of the former USSR) Soviet computer discoveries and achievements.

One should emphasize that RVCM is a non-commercial cultural project popularizing science and technology, demanding significant efforts on a continuous basis. The RVCM will be glad to establish worldwide friendly cooperation and will be grateful to all scientific organizations, producing companies as well as individual experts for their support and cooperation. ∎

The ITU Information Society report and the development index 2017 is available at - http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2017.aspx

Within a world ranking of 176 states, the best performing IT STAR countries, according to the ITU ICT Development Index 2017, are:

Rank

21	Austria
28	Cyprus
33	Slovenia
36	Croatia
38	Greece
41	Lithuania
43	Czech Rep.
46	Slovakia
47	Italy
48	Hungary
49	Poland
50	Bulgaria
55	Serbia
58	Romania
69	TFYR Macedonia

The full list is available at http://www.itu.int/net4/ITU-D/idi/2017/ ∎

Member Society News

Lithuania

13th International Baltic Conference on Databases and Information Systems (Baltic DB&IS 2018)
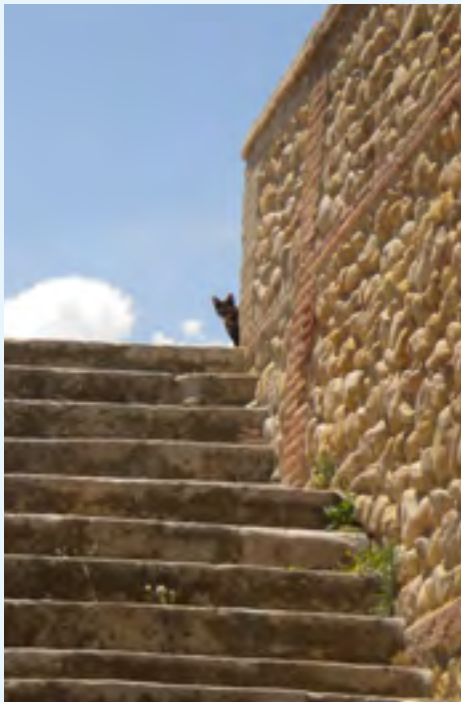1-4 July 2018, Trakai, Lithuania

Organizers: Vilnius University, LIKS, VGTU, Lithuanian Academy of Sciences

www.mii.lt/balticDBIS2018

Deadlines:
March 19, 2018 – Abstract submission
April 2, 2018 – Paper submission

■

MultiCulti

Snow Mountain

Dorothy Hayden

The photo we chose this time for our front page is of Schneeberg, the highest mountain in Lower Austria (2,076 meters) and along with the adjacent Rax considered as the Viennese "Hausberge".

On a clear day it can be seen from Vienna, Bratislava and Sopron. Vienna's claim to have the best drinking water in the world is largely due to the water pipe coming from the Schneeberg region.

Puchberg, a small health resort cuddled in the foothills of Schneeberg offers an excellent starting point for many hiking trails. It is also the starting point of the Schneeberg rack railway, which first started operations in 1897. The journey with the modern Salamander train takes you to an altitude of 1,800 meters in about 40 minutes. Halfway up is the Baumgartner station, where visitors can taste the famous Schneebergbuchteln – sweet yeast rolls filled with jam or vanilla sauce.

Opposite the last station is a chapel dedicated to Empress Elizabeth (Sisi), the Austro-Hungarian Queen of Hearts. The platform offers great views of the surrounding territories and trails from here lead to numerous mountain huts. The Fischerhütte is about 75 minutes away from the train station and at 2,049 meters above sea level is famous for being the highest refuge in Lower Austria. It is close to the Kaiserstein (2,069m.) reminiscent of the ascents of Emperor Franz Joseph I.

Apart of being a hikers' paradise, the Schneeberg region offers diverse challenges to climbers, mountain-bikers, skiers, and to everyone keen on a pleasant stroll with good overnight lodging and culinary choice. ■

Type of organization

Regional non-governmental and non-profit professional association in the ICT field.

Date and place of establishment

18 April **2001**, Portoroz, Slovenia

Membership

Countries represented (*see next page for societies*), year of accession, representatives

- Austria (2001) G. Kotsis, E. Mühlvenzl, R. Bieber
- Bulgaria (2003) K. Boyanov, I. Dimov
- Croatia (2002) M. Frkovic
- Cyprus (2009) P. Masouras
- Czech Republic (2001) O. Stepankova, J. Stuller
- Greece (2003) S. Katsikas
- Hungary (2001) B. Domolki
- Italy (2001) G. Occhini
- Lithuania (2003) E. Telesius
- Macedonia (2003) P. Indovski
- Poland (2007) M. Holynski
- Romania (2003) V. Baltac
- Serbia (2003) G. Dukic
- Slovakia (2001) I. Privara
- Slovenia (2001) N. Schlamberger

Mission

"To be the leading regional information and communication technology organization in Central, Eastern and Southern Europe which promotes, assists and increases the activities of its members and encourages and promotes regional and international cooperation for the benefit of its constituency, the region and the international ICT community."

Governance

IT STAR is governed according to the letter of its Charter by the Business Meeting of MS representatives:

2017	Sofia, **Bulgaria** (September)
2016	Milan, **Italy** (October)
2015	Warsaw, **Poland** (October)
2014	Szeged, **Hungary** (September)
2013	Bari, **Italy** (May)
2012	Bratislava, **Slovakia** (April)
2011	Portoroz, **Slovenia** (April)
2010	Zagreb, **Croatia** (November)
2009	Rome, **Italy** (November)
2008	Godollo, **Hungary** (November)

2007	Genzano di Roma, **Italy** (May)
	Timisoara, **Romania** (October)
2006	Ljubljana, **Slovenia** (May)
	Bratislava, **Slovakia** (November)
2005	Herceg Novi, **Serbia & Montenegro** (June)
	Vienna, **Austria** (November)
2004	Chioggia, **Italy** (May)
	Prague, **the Czech Republic** (October)
2003	Opatija, **Croatia** (June)
	Budapest, **Hungary** (October)
2002	Portoroz, **Slovenia** (April)
	Bratislava, **Slovakia** (November)
2001	Portoroz, **Slovenia** (April)
	Como, **Italy** (September)

Coordinators

2015 –	Marek Holynski
2010 – 2015	Igor Privara
2006 – 2010	Giulio Occhini
2003 – 2006	Niko Schlamberger
2001 – 2003	Plamen Nedkov (cur. Chief Executive)

Major Activities

- 10th IT STAR WS on IT Security
  http://www.starbus.org/ws10
- 9th IT STAR WS on ICT Strategies and Applications
  http://www.starbus.org/ws9
- 8th IT STAR WS on History of Computing
  http://www.starbus.org/ws8
- 7th IT STAR WS on eBusiness -
  http://www.starbus.org/ws7
- 6th IT STAR WS on Digital Security -
  http://www.starbus.org/ws6
- IPTS - IT STAR Conference on R&D in EEMS -
  http://eems.starbus.org
- 5th IT STAR WS and publication on Electronic Business - http://starbus.org/ws5/ws5.htm
- 4th IT STAR WS and publication on Skills Education and Certification - http://starbus.org/ws4/ws4.htm
- 3rd IT STAR WS and publication on National Information Society Experiences – NISE 08
  http://www.starbus.org/ws3/ws3.htm
- 2nd IT STAR WS and publication on Universities and the ICT Industry
  http://www.starbus.org/ws2/ws2.htm
- 1st IT STAR WS and publication on R&D in ICT
  http://www.starbus.org/ws1/ws1.htm

Periodicals & Web-site

The IT STAR Newsletter (nl.starbus.org) published quarterly.
www.itstar.eu   ∎

IT STAR Member Societies

Austrian Computer Society – OCG Wollzeile 1, A-1010 VIENNA, Austria Tel. +43 1 512 0235 Fax +43 1 512 02359 e-mail: ocg@ocg.at www.ocg.at	**Bulgarian Academy of Sciences – BAS** Institute for Information and Communication Technology Acad.G.Bonchev str.Bl.25A SOFIA 1113, Bulgaria Tel +359 2 8708494 Fax +359 2 8707273 e-mail: vomidiv@gmail.com www.bas.bg
Croatian IT Association– CITA Ilica 191 E/II, 10000 ZAGREB, Croatia Tel. +385 1 2222 722 Fax +385 1 2222 723 e-mail: hiz@hiz.hr www.hiz.hr	**The Cyprus Computer Society – CCS** P.O.Box 27038 1641 NICOSIA, Cyprus Tel. +357 22460680 Fax +357 22767349 e-mail: info@ccs.org.cy www.ccs.org.cy
Czech Society for Cybernetics and Informatics – CSKI Pod vodarenskou vezi 2, CZ-182 07 PRAGUE 8 – Liben Czech Republic Tel. +420 266 053 901 Fax +420 286 585 789 e-mail: cski@utia.cas.cz www.cski.cz	**Greek Computer Society – GCS** Thessaloniki & Chandri 1, Moshato GR-18346 ATHENS, Greece Tel. +30 210 480 2886 Fax +30 210 480 2889 e-mail: epy@epy.gr www.epy.gr
John v. Neumann Computer Society – NJSZT P.O. Box 210, Bathori u. 16 H-1364 BUDAPEST, Hungary Tel.+36 1 472 2730 Fax +36 1 472 2739 e-mail: titkarsag@njszt.hu www.njszt.hu	**Associazione Italiana per l' Informatica ed il Calcolo Automatico – AICA** Piazzale R. Morandi, 2 I-20121 MILAN, Italy Tel. +39 02 760 14082 Fax +39 02 760 15717 e-mail: g.occhini@aicanet.it www.aicanet.it
Lithuanian Computer Society – LIKS Geležinio Vilko g. 12-113 LT-01112 VILNIUS, Lithuania Tel. +370 2 62 05 36 e-mail: liks@liks.lt www.liks.lt	**Macedonian Association for Information Technology – MASIT** Dimitrie Cupovski 13 1000 SKOPJE, Macedonia e-mail: indovski.p@gord.com.mk www.masit.org.mk
Polish Information Processing Society Zarząd Główny ul. Solec 38 lok. 103 00-394 Warszawa Tel./Fax +48 22 838 47 05 e-mail: marek.holynski@gmail.com www.pti.org.pl	**Asociatia pentru Tehnologia Informatiei si Comunicatii – ATIC** Calea Floreasca Nr. 167, Sectorul 1 014459 BUCAREST, Romania Tel +402 1 233 1846 Fax +402 1 233 1877 e-mail: info@atic.org.ro www.atic.org.ro
JISA Union of ICT Societies Zmaj Jovina 4 11000 BELGRADE, Serbia Tel.+ 381 11 2620374, 2632996Fax + 381 11 2626576 e- mail: dukic@jisa.rs www.jisa.rs	**Slovak Society for Computer Science – SSCS** KI FMFI UK, Mlynská dolina SK-842 48 BRATISLAVA, Slovak Rep. Tel. +421 2 6542 6635 Fax +421 2 6542 7041 e-mail: SSCS@dcs.fmph.uniba.sk www.informatika.sk
Slovenian Society INFORMATIKA – SSI Litostrojska cesta 54 SLO-1000 LJUBLJANA, Slovenia Tel. +386 123 40836 Fax +386 123 40860 e-mail: info@drustvo-informatika.si www.drustvo-informatika.si	IT STAR