

130TH SESSION OF THE
JINR SCIENTIFIC COUNCIL
(23-24 SEPTEMBER 2021)

FIRST STEPS IN IMPLEMENTATION OF
THE JINR LONG-TERM DEVELOPMENT
STRATEGIC PLAN

GRIGORY TRUBNIKOV



Strategy Architecture (6 key blocks):

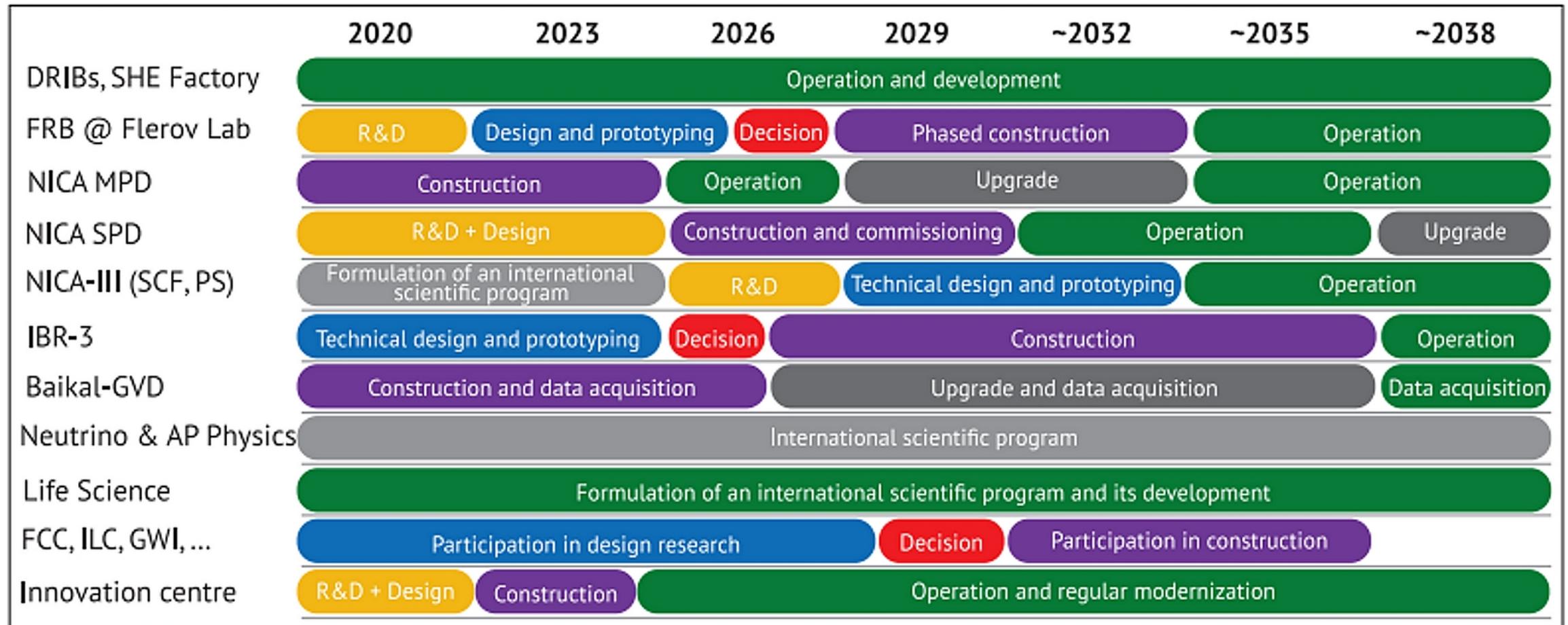


**ELEMENTS OF THE
“JINR 2030+” ENVIRONMENT**

JINR DNA – International Research Topical Plan

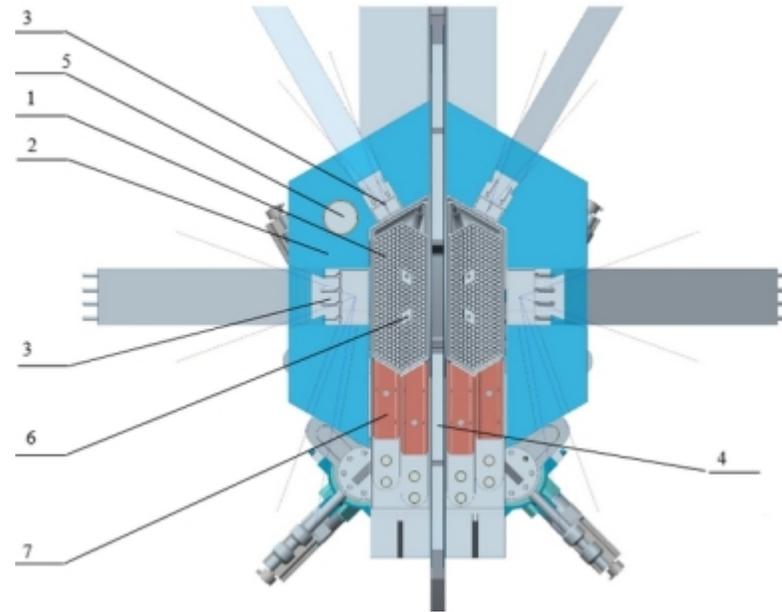
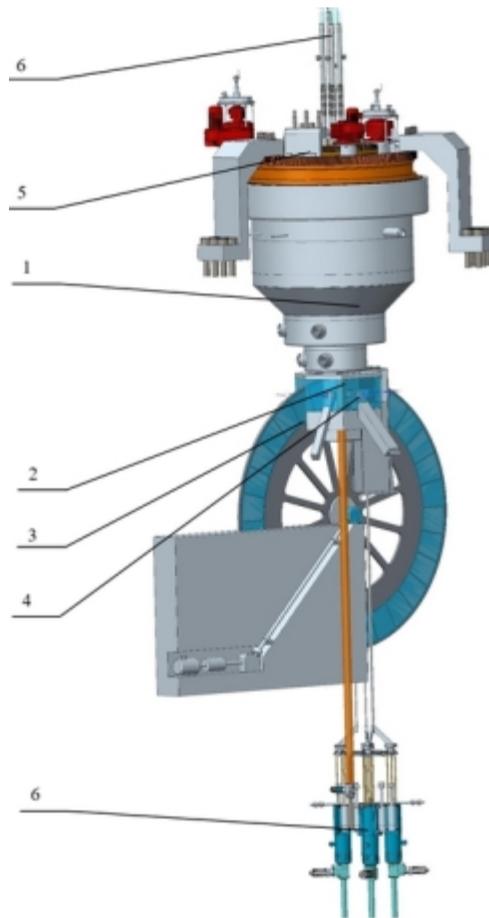
**SCIENTIFIC INFRASTRUCTURE
AND INNOVATIONS**

STRATEGIC PLANS: DEVELOPMENT OF SCIENTIFIC INFRASTRUCTURE FOR BASIC AND APPLIED RESEARCH



Project of the New Neutron Source

Conceptual technical proposal of Neptune (by NIKIET) – 1st step of the roadmap



- 1 - reactor;
- 2 - stationary reflector;
- 3 - reactivity modulator;
- 4 - moderators;
- 5 - rotary plugs;
- 6 - CPS actuators;
- 7 - RS of RSS

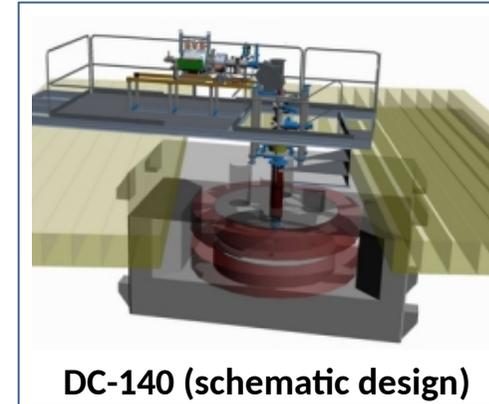
Dimensions:

- height (including CPS actuators) 14,2 m;
- core height 3,54 m;
- core diameter 3,2 m;
- modulator wheel diameter 3,72 m.

Development of technologies and methods in the field of nuclear and radiation medicine, radiation materials science, advanced training of specialists for JINR Member States for radiation biology, medical physics, material studies.

Main stages:

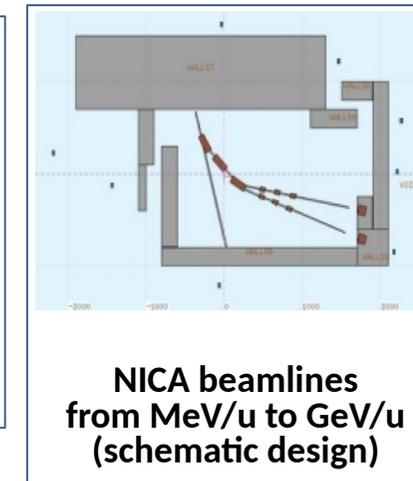
- Radiation biology: **OMICS@LRB** and neuroradiobiological studies. Radiation neuroscience. Approaches to increase radiosensitivity: pharmaceuticals, transgene systems, targeted delivery (molecular vectors) and radionuclide;
- **ARIADNA**: Applied beams@NICA (ions from MeV/u to GeV/u): radiobiological studies (400-800 MeV/n); radiation testing of semiconductor electronics (3; 150-350 MeV/n); nuclear physics @ 1-4.5 GeV/n. Period of realization: 2021-2024;
- New facility with **DC-140 cyclotron** for electronic component testing, radiation material science, track pore membrane research and production, etc. Period of realization: 2021-2023;
- New research **proton cyclotron (MSC-230)** for R&D in beam therapy: treatment planning; radiomodulators for photon and proton therapy, flash-therapy, pencil beam, other breakthrough technologies. As a pilot facility for future medical centre. Period of realization: 2021-2024.
- New facility: **Radiochemical Laboratory Class-I** for production of radioisotopes (Ac^{225} , ^{99m}Tc) for nuclear medicine in photonuclear reactions @ 40MeV Rhodotron accelerator. Period of realization: 2022-2026;



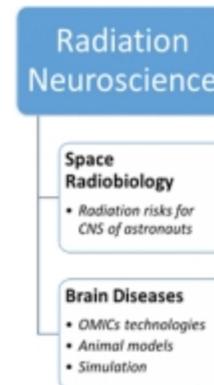
DC-140 (schematic design)



SC-230 (schematic design)



NICA beamlines from MeV/u to GeV/u (schematic design)



**DEVELOPMENT OF JINR
AS INTERNATIONAL INTERGOVERNMENTAL
RESEARCH ORGANIZATION
AND EXPANSION OF THE PARTNER NETWORK**

FIRST MEETING OF WORKING GROUP@JINR CP FOR STRATEGIC ISSUES

On 22 July 2021 the first meeting of the **Working Group on Strategic Issues (WGSi)** was held in a mixed format under the chairmanship of the representative of the Czech Republic Ivan Štekl.

The Working Group was established by the decision of the Committee of Plenipotentiaries of JINR in March 2021.

The Secretariat for the WGSi headed by vice-director L. Kostov was established by decree of Director



Major goals of WGSi:

- ❖ to be a reliable tool contributing to closer participation of the Member States in the JINR activities;
- ❖ to increase the spread of information and the degree of elaboration of issues for discussion by Plenipotentiaries at CP meetings.

Highlights of the meeting:

- ❖ **presentation of the draft regulations on associated membership in JINR;**
- ❖ **decision to present the principles and rules of the WGSi operation to the CP members for approval.**

MEETINGS WITH NEWLY APPOINTED PLENIPOTENTIARIES

26.02.2021 / Zoom

Tsanko Bachiyiski, Plenipotentiary of Bulgaria.

- ❖ preparation for Year of Bulgaria in JINR;
- ❖ information center at Sofia University



18.03.2021 / Zoom

**Arif Mamed oglu Gashimov,
Plenipotentiary of Azerbaijan.**

- ❖ Enhancing cooperation with NICA;
- ❖ Upcoming visit of delegation to JINR



18.03.2021 / Zoom

Sargis Hayotsyan, Plenipotentiary of Armenia.

- ❖ Network of PLI in Armenia;
- ❖ Cooperation with ERPHI



23.03.2021 / In-person

**Batyrzhan Karakozov,
Plenipotentiary of Kazakhstan.**

- ❖ Basic facilities in RK, opening JINR Branch;
- ❖ AYSS conference in October in Kazakhstan

19.07.2021 / In-person

Fedor Šimkovic, Plenipotentiary of Slovakia.

- ❖ presence of young researchers at JINR;
- ❖ increase in participation of high-tech Slovak enterprises in JINR projects
- ❖ cross Days of JINR in Slovakia and Days of Slovakia in JINR
- ❖ Participation of Slovakia in creation of JINR Innovation Centre



ARE-JINR: TODAY and TOMORROW - Cairo, 13-14 September, 2021

Upgrading the status of Egypt in JINR up to the full membership “Strategic Opportunities for Advancing Global Collaborative Perspectives Towards Achieving 2030 Main Research Goals”



Honorable speakers:

- the Ambassador of the Russian Federation to Egypt H. E. **Georgiy Borisenko**;
- the Ambassador of Romania to Egypt H. E. **Mihai Stuparu**;
- the Ambassador of Bulgaria in Egypt H. E. **Deyan Angelov**;

The participants of the ceremonial opening of the event:

- ❖ JINR Director Academician **Grigory Trubnikov**;
- ❖ Chairman of the Egyptian Atomic Energy Agency (EAEA)
- ❖ Prof. **Amr El-Hag Ali**;
- ❖ President of ASRT Prof. **Mahmoud Sakr**;
- ❖ Minister of Higher Education and Scientific Research of Egypt
- ❖ H. E. **Khaled Abdel-Ghaffar**.

Topic parallel sessions

- Radiobiology, Genetics, and Radiation Therapy
- Nuclear analytical techniques, neutron radiography
- Archaeology and Cultural Heritage
- High energy physics, NICA, SPD, and MPD
- Nanotechnology Applications
- Theoretical Physics and Advanced Mathematics
- Analysis of Big Data, Computation

Ceremonial opening of the JINR Information Centre at the headquarter of ASRT



Participants:

- JINR delegation headed by Acad. **G. Trubnikov**;
- Directorate of ASRT, headed by Prof. **M. Sakr**;
- Arab Atomic Energy Agency’s Head of Scientific Affairs Directorate **Daw Saad Mosbah**;
- Egyptian leading scientists

Main highlights:

- ❖ discussion of the prospects for the development of the information center and its role in the development of scientific communication in both Egypt and the MENA region;
- ❖ demonstration of educational films prepared by the UC as one of the training tools for the potential audience of the Information Center.



JINR delegation's visit to Bulgaria, 15-18 September



15 September - Arrangement of the new recreation area with the assistance of JINR, BNRA and Kozloduy NNP in Sofia South Park;

17 September - festive scientific session “65 years of Bulgaria-JINR cooperation”:

- ❖ Reports on the contribution of Bulgarian scientists to JINR development and participation of Bulgaria in the JINR-CERN cooperation
- ❖ Presentation of the JINR Development Strategy up to 2030 and beyond.



16 September – **Opening ceremony of the JINR Information Centre, the first in the European Union, at the premises of the Physical Faculty of Sofia University “St. Kliment Ohridski”:**

- ❖ The Agreement on Opening of JINR Information Centre and the Agreement on Cooperation in Scientific-Research Activity and HR Development, aimed at widening cooperation between JINR and Sofia University in science, research, innovation, personnel training and popularization of natural science, were signed by **Ltchesar Kostov** and Rector of Sofia University “St. Kliment Ohridski” Prof. **Anastas Gerdjikov**;
- ❖ ICD Director **Dmitry Kamanin** presented JINR IC network development, its work opportunities and achievements;
- ❖ UC Director **Stanislav Pakuliak** made a report on the importance of JINR IC activity in education, and its development on the basis of IC.

JEMS PROGRAMME RESUMED ITS WORK: ATTENTION TO THE UNIVERSITIES



JEMS-16, 19 – 23 April

- Sofia University, Bulgaria
- ISU, Irkutsk
- TPU, Tomsk
- FEFU, Vladivostok
- National Cancer Centre, Belarus

Round Tables “JINR Information Centres”
 Video conferencing with IC in the South of Russia (NOSU)
 Plans to open the new JINR Information Centres in , Bulgaria, Armenia, Serbia, Kazakhstan and several Universities of Russia,

JEMS-17, 24 – 28 May

- RAU and Alikhanyan NL, Armenia
- GGU, Gomel, Belarus
- SFEDU, Rostov-on-Don
- NEFU, Yakutsk
- KFU, Kazan
- KChSU, Karachaevsk
- ChSU, Grozny



JEMS-18, 5 – 9 July

- MEPHI, Moscow
- NCFU, Stavropol
- KBSU, Nalchik
- SFEDU, Rostov-on-Don
- Bulgaria**
- **Sofia University**
- **University of Plovdiv**
- **BNRA, Sofia**
- **Kozloduy NPP**





- **'Big Break' project**
online lectures by JINR scientists
(26, 28, 30 July)
- **Science festivals:**
Stem Fest (06 February), **Geek Picnic** (21 August)
- **Lectures by Yu. Ts. Oganessian and G.V. Trubnikov**
at Educational Centre "Sirius" (17 June)
- **Online Lectures for foreign students**
Virtual Science Camp (26 January, 9 February, 26 & 30 March, 13 April)
- **Career Days at MePhi** (17 January); **at MIPT** (11 June)
- **Forum "Start of a Career: Spring" for students of NRNU MEPhi** (12-30 April)
- **All-Russia Forum of Science Communicators** (18 May)
- **National marathon Nauka Ryadom (lit. "Science is nearby")**
virtual excursion for schoolchildren to the NICA accelerator complex (11 June)
- **Popular science at Dubna schools** – lectures and experiments by JINR employees



- **VBLHEP** – NICA/MPD
- **FLNR** – SHE FACTORY
- **FLNP** – IBR-2
- **DLNP** – Project BAIKAL-GVD
- **LIT** – Central Information and Computer Complex
- JINR Timeline
- Nuclear Physics and Life Sciences
- JINR – International Intergovernmental Organization



Number of visitors since April ≈1500

- Official delegations
- JINR employees
- School students
- University students
- General public

**IMPROVING THE PERFORMANCE OF
THE TOPICAL PLAN REALIZATION
AND
ADMINISTRATIVE MANAGEMENT**

JINR Topical Plan (TP): Strategy for steady improvement

- Today's structure: TP -> directions (6) -> Themes (42) -> projects & activities (many).
- Potential problems: weak bound of themes/projects and resources (MP, \$, infrastructure); many small projects/activities under umbrella theme provided by same human resources -> risk of non-achieving plans; themes & projects of different nature (pure research, installation construction, experiments and collaborations, R&D) mixed;
- PAC's and Sc.Council are very effective for us (including cross-PAC's): evaluation and assessment of current projects and activities. Except flagship projects, others are prolonged until end of 2023.
- Steady evaluation and tuning with goal to start new 7-year Program (2024-2030) with the modernized TP: optimized, prioritized, structured, flexible, bound*, balanced**.
- *Strategy 2030+ says: "The document defining the organizational basis for the effective scientific activity at JINR is the annually updated Topical Plan. It must be balanced and provided with the financial and human resources available to the Institute."*

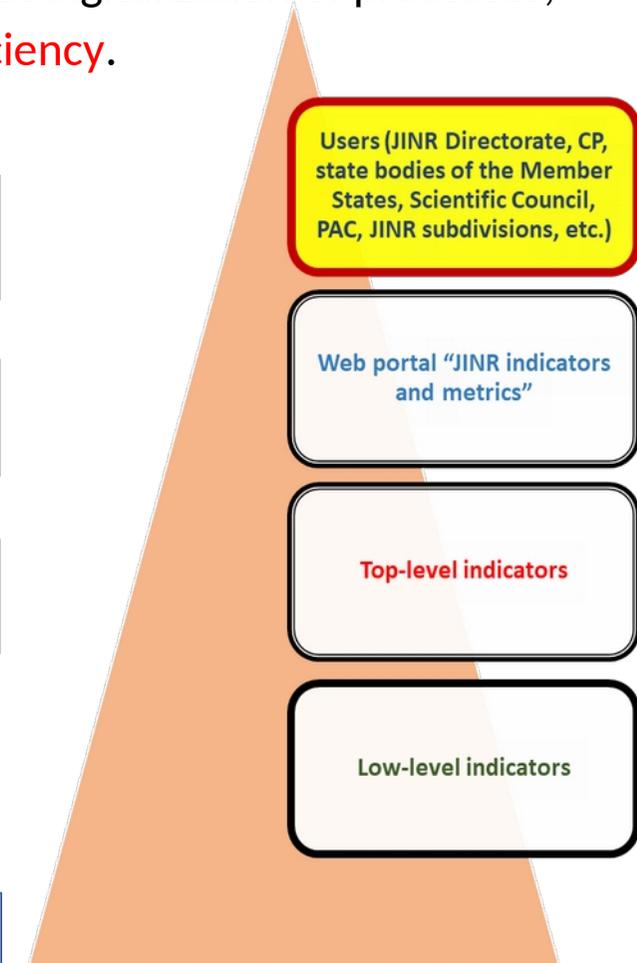
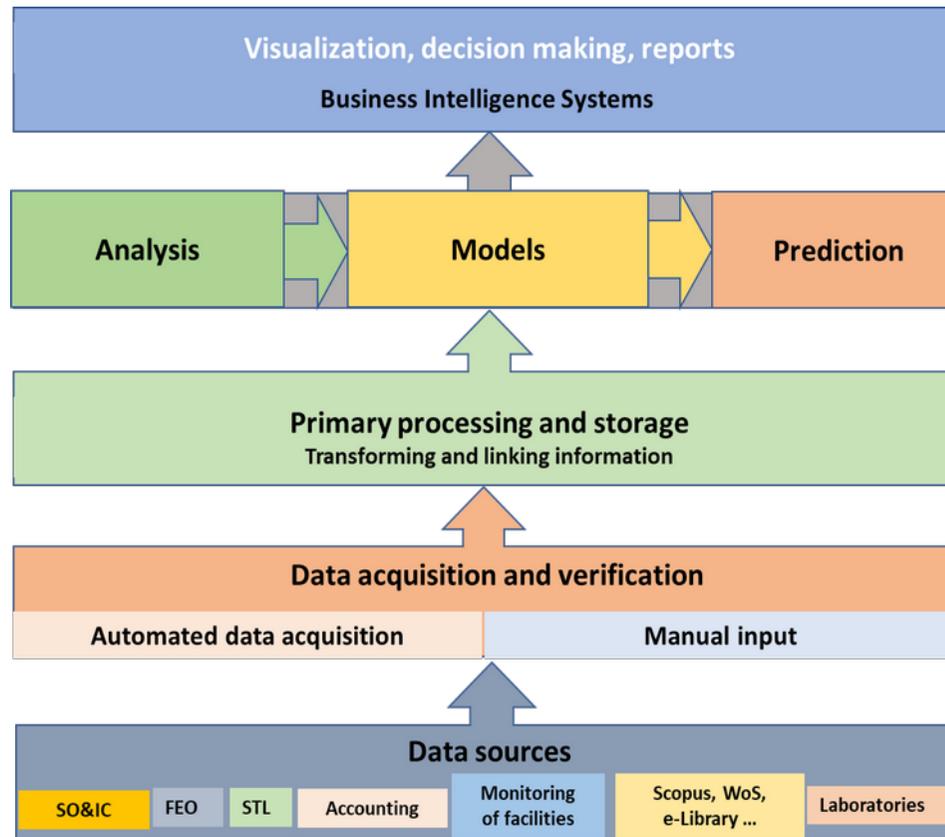
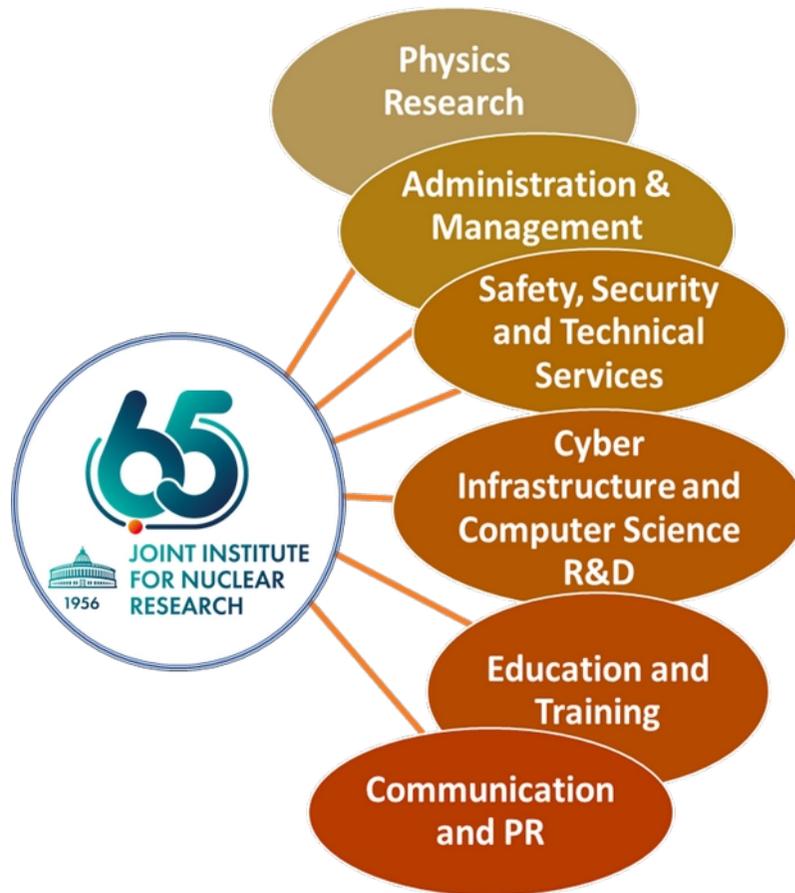
The principle of regular analysis of the quality of scientific results, performance of the leaders of the theme/project/ collaboration and updating the administrative structure for supporting scientific themes and areas, monitoring of the implementation and timely completion of projects, etc are necessary tools.

* bound: goals and time-line, resources, Lab management.

** balanced: basic research, R&D, applied research, organization.

DIGITAL JINR: STEP BY STEP

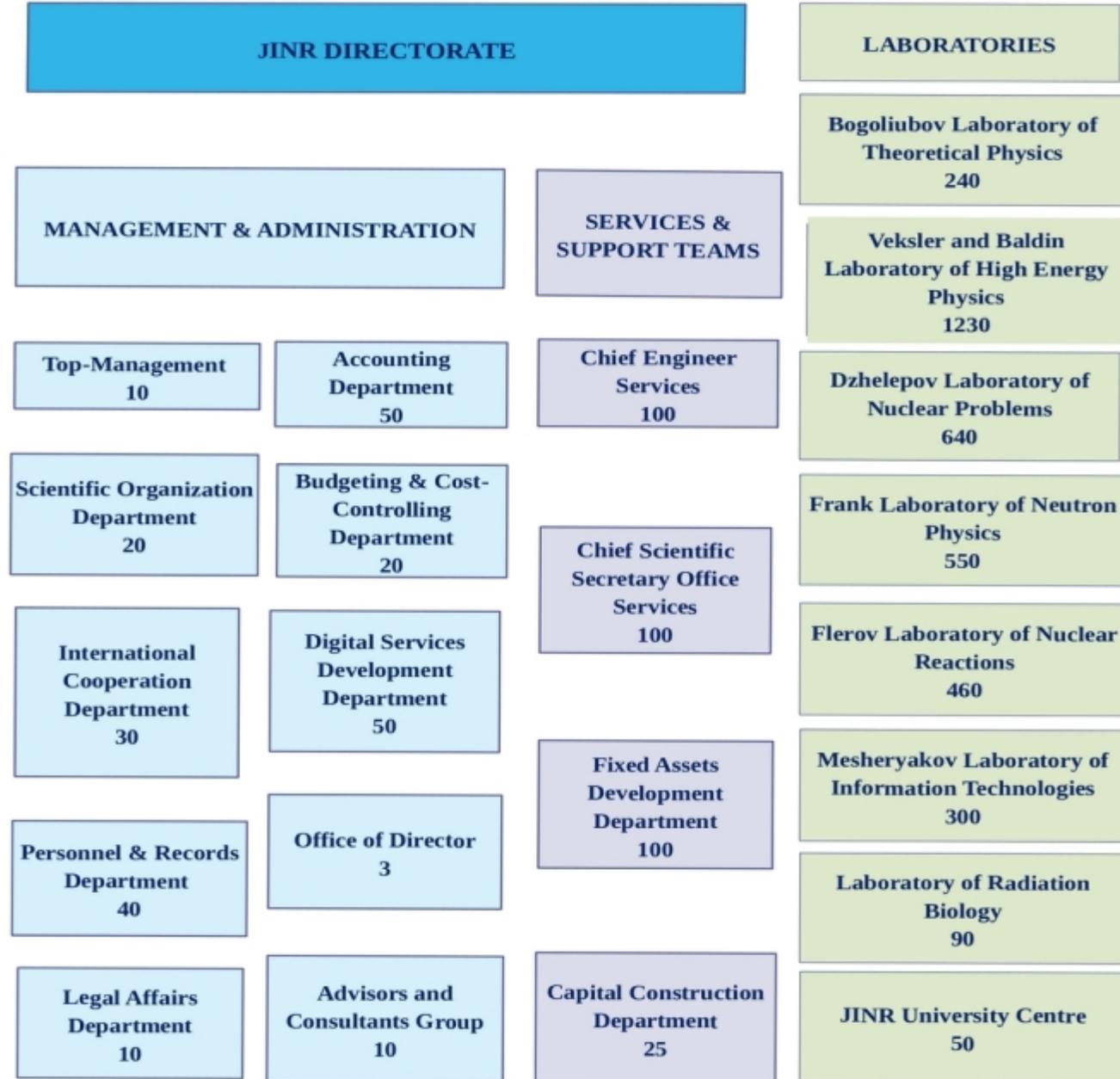
1. Analyze the current Digitalization Index of the JINR. Availability of Digital Services.
2. Develop an information system for monitoring metrics of the JINR development strategy
3. Create a model of the Digital Research Organization on basis of JINR. This is not about digitalization of processes, but about Instrument to evaluate **Research Capacity and Efficiency**.



The management and administration bodies of the Institute were reorganized into a number of departments with direct subordination to the JINR Directorate. The services of the Chief Scientific Secretary, together with the services of the Chief Engineer, are separated from the management structure. At the same time, there was optimisation of staff by > 80 employees.

Divisions with new functions have appeared in the management structure - Digital Service Department, expert and analytical group in the Scientific Organization Department, etc.

This restructuring and modernization have made the management system more compact and flexible, and the interaction of the departments with the Directorate of the Institute, with each other and with the Laboratories to be much more direct.



TUNING THE STRUCTURE OF PERSONNEL

ОБЪЕДИНЕННЫЙ ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ

ПРИКАЗ

29.06.2021

№ 539

г. Дубна

Об утверждении Положения
об ассоциированном персонале

Во исполнение решения сессии КПП от 25 марта 2021 г., в соответствии с Положением о Персонале ОИЯИ, в целях нормативного регулирования деятельности по развитию института ассоциированных членов персонала ОИЯИ как многоцелевого инструмента кадровой политики Института, для обеспечения высокого уровня интенсивности исследований на базовых установках ОИЯИ, создания максимально благоприятных условий для совместных исследований научных и научно-образовательных организаций государств-членов ОИЯИ с использованием научно-исследовательской инфраструктуры ОИЯИ, оптимизации системы подготовки кадров для государств-членов ОИЯИ

ПРИКАЗЫВАЮ

1. Утвердить Положение об ассоциированном персонале ОИЯИ.
2. Возложить на Департамент научно-организационной деятельности, Департамент международного сотрудничества и Департамент кадров и делопроизводства организацию работы по отбору, приему и учету членов ассоциированного персонала.
3. Руководителям структурных подразделений до 15.07.2021 обеспечить

The JINR Order put into effect the Regulation on Associated Personnel, a special category of long-term visitors from the scientific organizations collaborating with JINR on a regular basis. This is expected to enhance the human potential of the Institute.

ОБЪЕДИНЕННЫЙ ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ

ПРИКАЗ

01.09.2021

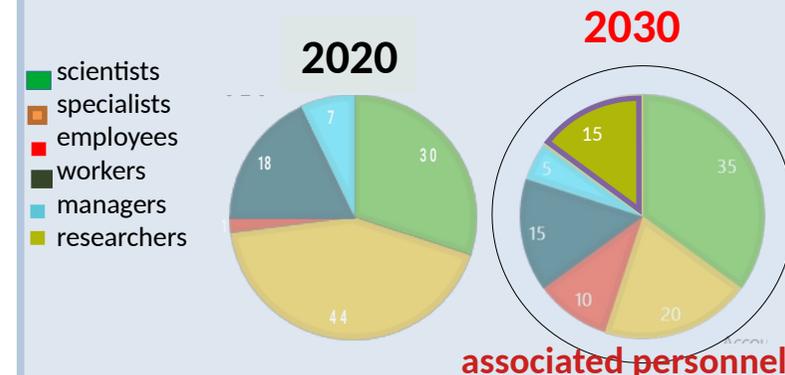
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г. Дубна

Another JINR Order put into effect the Regulation on employment and status of Trainee Researcher – a category of research staff, designed to support PhD students and young researchers from JINR member states.

1. Включить должность «стажер-исследователь» в категорию «научный

Personnel structure – scientists, specialists (engineers and technicians), employees, managers, researchers, associated personnel:



By 2030 - JINR personnel to increased by ~7000 staff:
<5000 - employees + > 1500 - associated personnel.

1500-2000 new researchers to JINR orbit

Г. В. Трубников

**WEB-SITE FOR STRATEGY PASSPORT:
MONITORING INDICATORS OF CAPACITY AND
PERFORMANCE OF JINR**

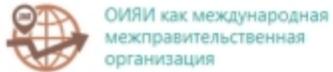
Monitoring of the JINR performance and capacity is implemented *via* a web-based portal of a system of quantitative and qualitative characteristics and indicators grouped into six classes: **JINR as international intergovernmental organization, Effectiveness of international scientific cooperation, Research potential and capacity, Effectiveness of scientific work, Personnel potential, Staff parameters.**



Мониторинг показателей

Мониторинг показателей реализации стратегии развития ОИЯИ и анализа показателей верхнего уровня обеспечивается детализированной системой характеристик, параметров и показателей нижнего уровня, утвержденной при принятии очередного семилетнего Плана развития ОИЯИ и корректируемой

ежегодно, а также разработанной и корректируемой методики подсчета количественных и определения качественных показателей.



ОИЯИ как международная межправительственная организация



Результативность международного научно-технического сотрудничества



Научно-исследовательский потенциал, наукоёмкость



Результативность научной работы



Кадровый потенциал

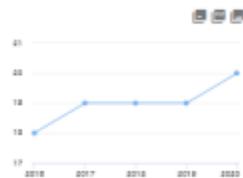


Персонал

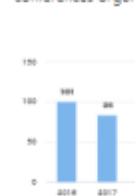


Effectiveness of ISTC

Contribution of the JINR research infrastructure to the search for answers to the global challenges facing the Member States



Number of meetir conferences organ



Research potential

List of major scientific and scientific-technological achievements of the Institute

Examination of the content of the results obtained in the JINR or with the decisive participation of the JINR, their influence on the relevant areas of research, novelty, etc.

[MORE INFO](#)

Uniqueness of research areas

The characteristics are compiled on the basis of the analysis of the uniqueness of tasks, methods, applied devices, and equipment in the projects of the Problem-Thematic Plan.

[MORE INFO](#)

The best achievements of the Institute over the past 5 years

Examination of the content of the results obtained in the JINR or with the decisive participation of the JINR during last 5 years, their influence on the relevant areas of research, novelty, etc.

[MORE INFO](#)

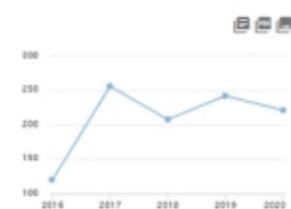


JINR as international intergovernmental organization

Member States and Associate Members

Number of Member State **13**
Number of Associate Members **6**

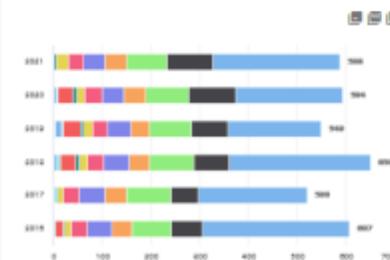
Total budget (by income), dynamics over 5 years (M\$)



Structure and dnr partner network

Number of observers, part collaborations
Number of organizations in network
Number of JINR informatic

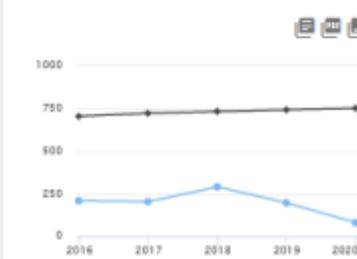
Number of projects under grants and special programs of the Plenipotentiary Representatives of the JINR Member States



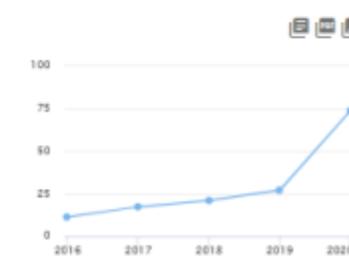
Number of highly cited JINR's publications



Number of users of JINR's basic facilities



Total amount of data in the JINR storage system (PB)

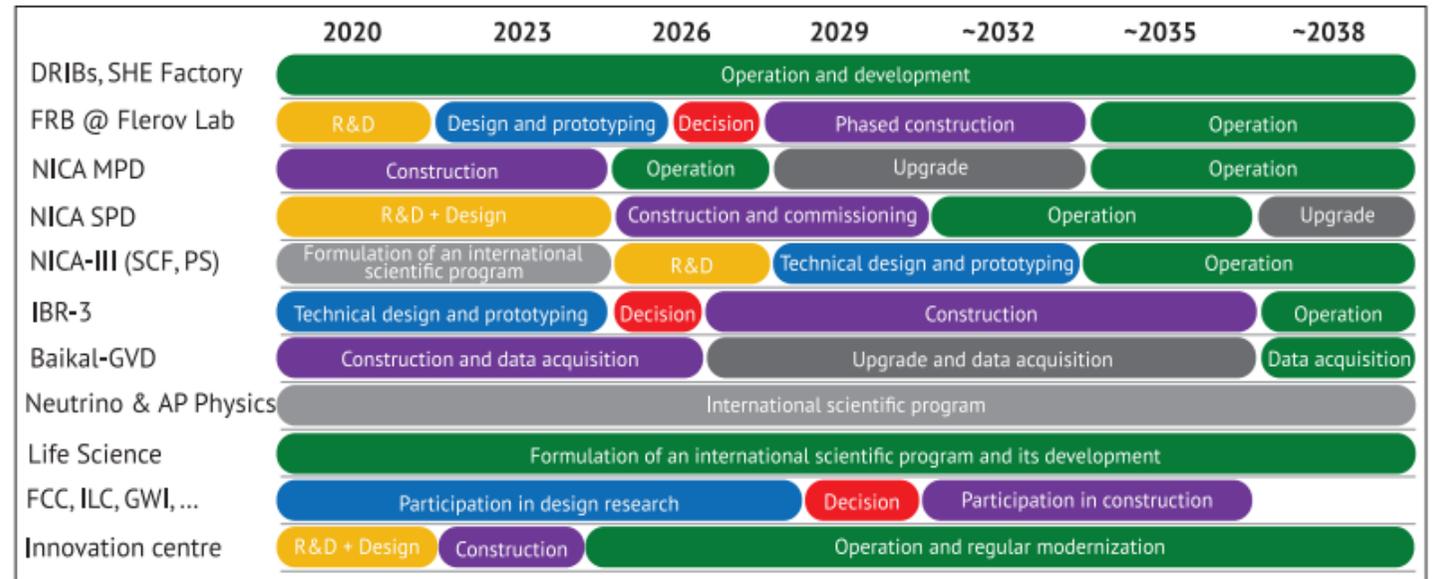




TUNING THE STRATEGY

The assessment of implementation of the JINR Long-Term Development Strategy up to 2030 and beyond has been launched in July 2021. The goal of this action is to assess in a short report the implementation of the main recommendations of the 2019 Long-Term Development Strategy approved by CP.

The assessment will serve in particular as a basis for a timely launch of the next JINR 7-years plan to be prepared in 2022-2023. The reports should be available by the end of November 2021 and are expected to be presented at the SC and CP meetings in 2022.





**THANK YOU
FOR YOUR ATTENTION!**