

ENGINEERING IN INDUSTRIAL SECTOR AS A KEY FACTOR OF DEVELOPMENT

28 October 2014

AEB OFFICE



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WELCOME ADDRESS



Association
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General Director, Trtrans

***Engineering in European
Company***



Return of experience on the creation of joint ENGINEERING center for transport systems development

October 28th 2014

MASTER THE MOST ADVANCED TECHNOLOGIES

Alstom and TransMashHolding are main suppliers of railway rolling stock.

The most advanced technologies in railway transport industry enabled Alstom to set world speed record on the railway at 574,8 kph which was registered on 3rd of April 2007.



STRATEGIC PARTNERSHIP FOR ENGINEERING JV TRTrans



LLC “TRTrans”



ACCESS THE KEY TECHNOLOGIES AND RnD

TRTrans is an engineering company created in 2010 with the goal of developing designs for new rolling stock products.

TMH was looking for the latest technologies in **traction**, **bogies**, **car body shells**, and **TCMS** (Train Control Monitoring System) and the creation of the JV enabled them to benefit from best expertise.

TRTrans' first activities started in Novocherkassk, where we now have close to 160 engineers working.



TRANSFER OF INNOVATIONS

By doing our projects inside JV TRTrans, we have taken the last technology innovations issued from Alstom PRIMA locomotives in Russia, such as:

- Modular Traction system
- H2O power modules with 6,5kV IGBT
- Bogie
- Last generation of TCMS (Train Control Monitoring System) including diagnostic system



H2O Power modules



AGATE Link device (MPU)

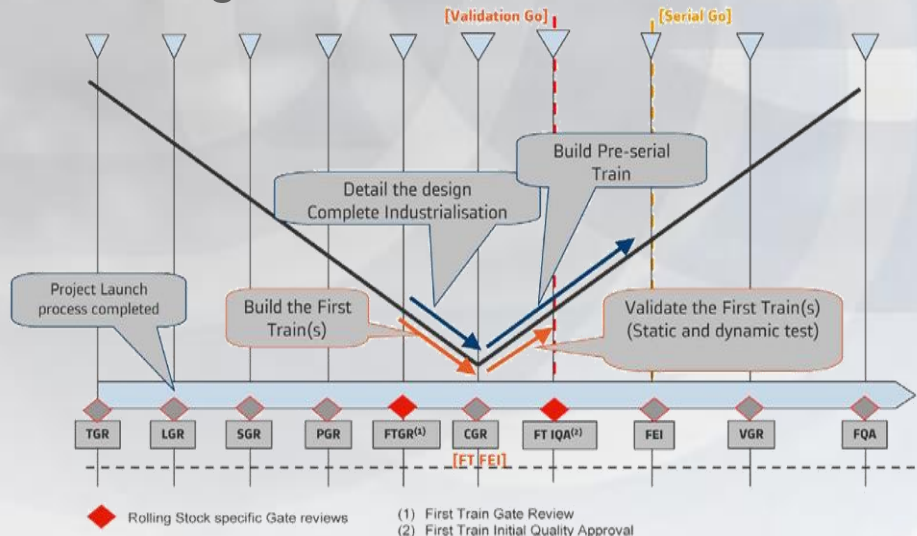


6,5kV IGBT

TRANSFERT OF PROCESS & TOOLS

Innovations are not only in technology but also in process and tools:

- Standard planned Gate Reviews and Design Reviews with formal pre defined check lists
- Use of best in class design standards : RAMP(Risk assessment and Mitigation Plan), FMECA(Failure Mode, Effect and Criticality Analysis), 8D problem solving method
- Full TCMS test benches allowing to validate SW before starting tests on locomotives



RETURN OF EXPERIENCE

SPECIFIC ATTENTIONS & RECOMMENDATIONS

- Organisation
 - Agility & Flexibility
 - Russian management
- People
 - External/young candidates (recruitment)
 - Personal development
- Process
 - Adaptation to Russia of mother company's process
 - Deployment step by step
- Certification (software)



Спасибо за внимание

Thank for your attention



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Alexander Chulok

Deputy Director, International Research and Educational Foresight Center, HSE

***Russian System of
Technological
Forecasting: Possibilities for
New Businesses***

Georguy Kotiev

**Professor, Director of
Research Educational Centre,
NAMI; Head of Chair,
Bauman Institute**

***Engineering Management in
the Industry-Based Institute***



Организация инжиниринга для автомобильной отрасли при взаимодействии ГНЦ «НАМИ» и университетов

директор Научно-образовательного центра ГНЦ «НАМИ»,
заведующий кафедрой «Колесные машины»

МГТУ им. Н.Э. Баумана

Г. Котиев



НАМИ и Университеты



- НАМИ взаимодействует в образовательной сфере с Университетами (МГТУ им. Н.Э. Баумана, «МАМИ», «МАДИ» и др.) в подготовке специалистов для автомобильной отрасли:
 - в организации учебного процесса и производственных практик;
 - в спонсорской помощи студенческим командам «Формула Студент»;
 - в трудоустройстве выпускников и студентов старших курсов.



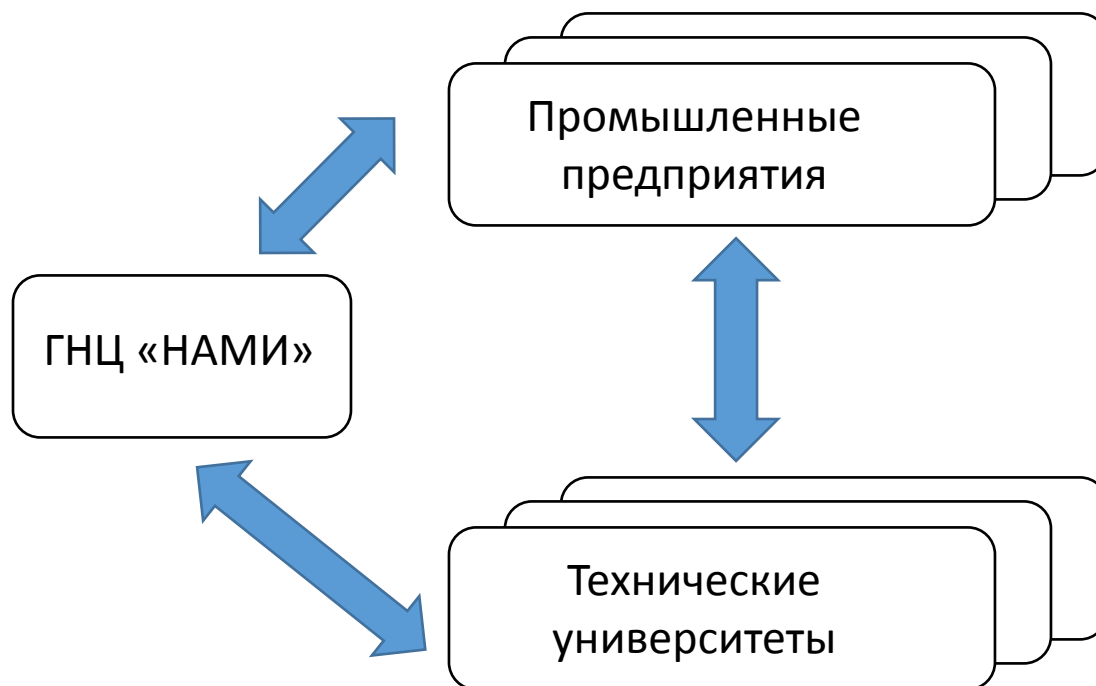
НАМИ и Университеты

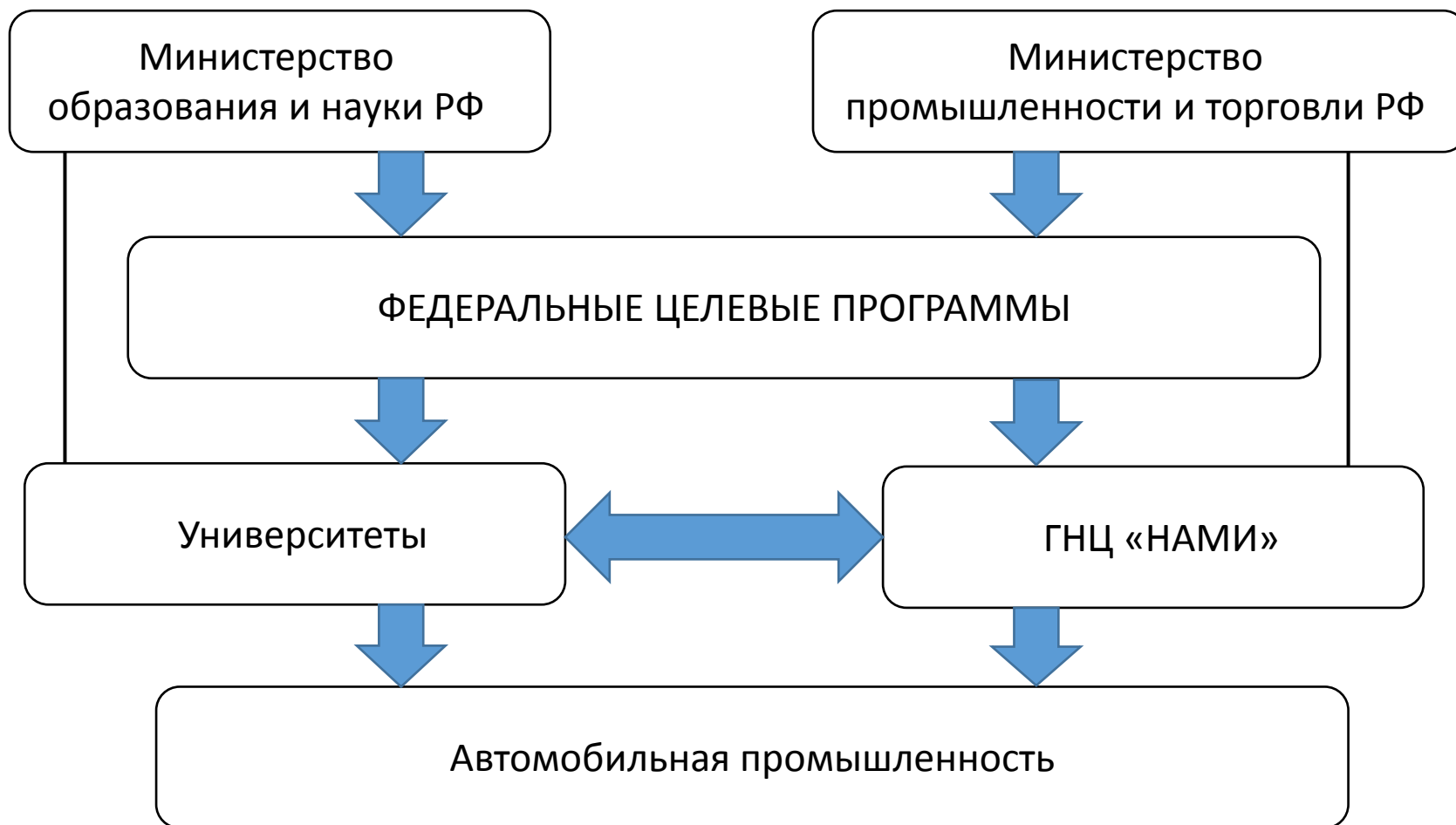


- НАМИ взаимодействует с Университетами при выполнении НИОКР:
 - выступает в качестве Заказчика на инжиниринг наукоемких работ, привлекая Университеты в качестве соисполнителей;
 - выступает в качестве Исполнителя при изготовлении опытных образцов узлов и агрегатов по заказу Университетов.



«НАМИ» – государственный научный центр (ГНЦ),
связывающий университетскую науку с
промышленностью





Nikolay Klementiev

Project Director, Spectrum group

Project & Construction Management of Industrial of Industrial Plant: Efficient Management

Guzel Mullayarova

Head of Investors Relations Section, Directorate for Cooperation with Investors, SEZ "Alabuga"

***Possibilities of R & D
Organization in Special
Economic Zone ("Alabuga")***



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Q&A