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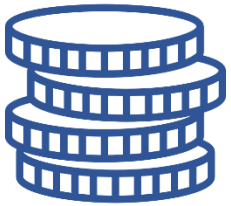
Project challenge:

Integrated Connectivity And Intelligence In The Russian Grid

Country challenge-provider: Russia 

Sergey Garmash, Stefan Mosbacher, Can Mutluer, Sebastian Wingender, Florian Beutel, Benjamin Will

Russian Grid Ecosystem



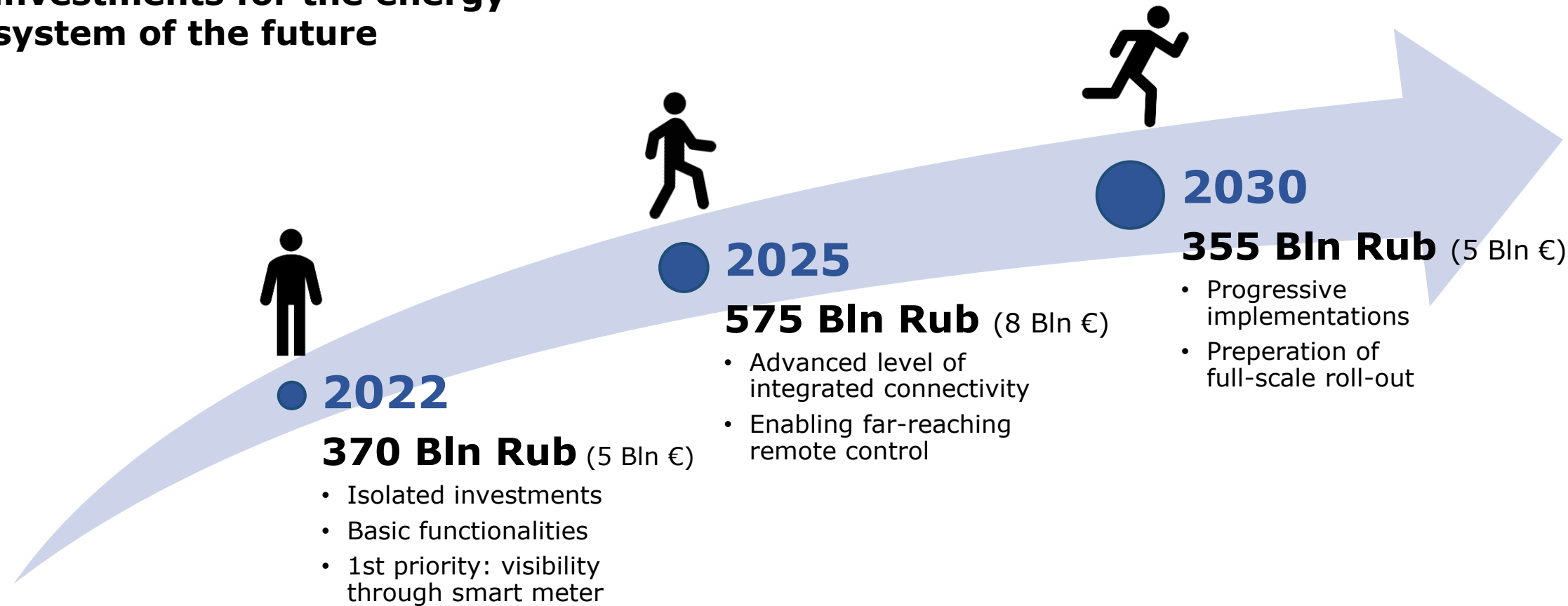
Economic damage of 40 Mln \square (0.6 Mln €)
due to grid outages (2017 within the region of North West Federal District only)



On top: Risk of severe penalties by contract violations
up to 10 Mln \square (150.000 €) per hour off-grid

What makes your Grid get Digital?

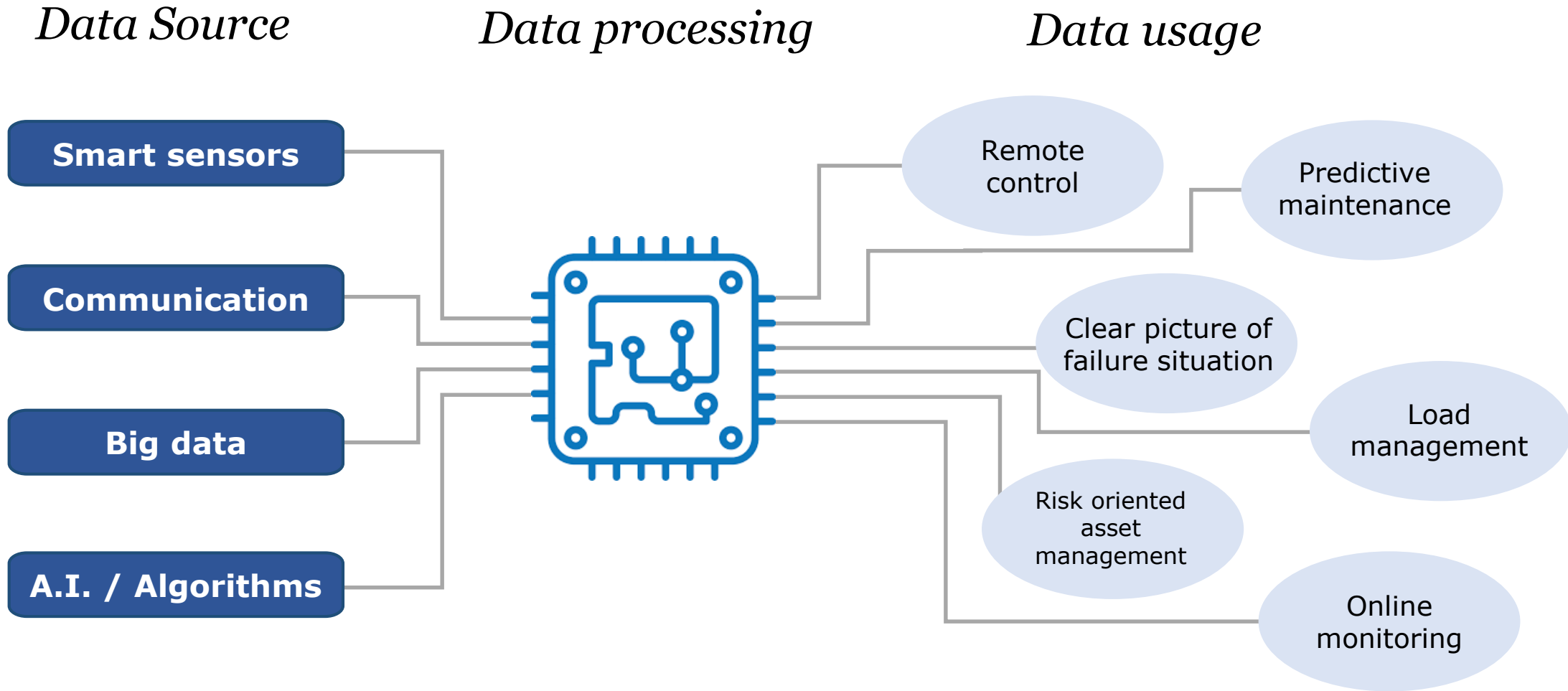
Rosseti's commitment to investments for the energy system of the future



Challenge► **Solution**► Business Model

*Initial situation: 904 Bln Rub
(12 Bln €) revenue of Rosseti in 2016*

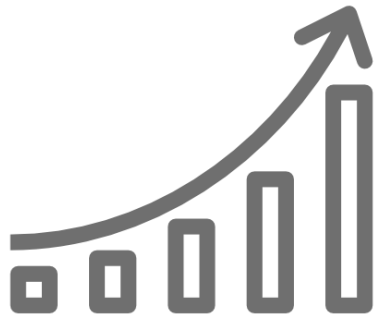
What makes your Grid get Digital?



Challenge► **Solution**► Business Model

Data Monetizing

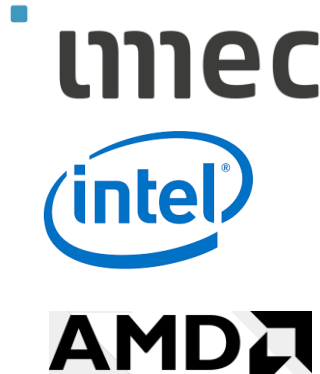
Market value of data is constantly growing



accenture

„Value of electrical utility customer data in the U.S. \$4.6 Bln/yr (4 Bln €/yr)”

Successful use cases

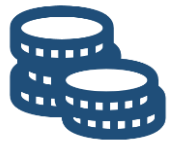


Stakeholders of Rosseti's data

- OEMs
(Original Equipment Manufacturers)
- Analytic consultants
- GIS
(Graphic Information Systems)
- Other grid companies
- Regulators

Challenge► Solution► **Business Model**

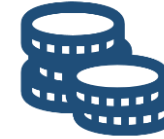
Digital Age — Data is the new Product



Smart equipment

- Load
- Switching operations
- Parameters of equipment
- Event log

→ **Sell to OEM**



Consumer data

- Consumption
- Forecast
- Installed load

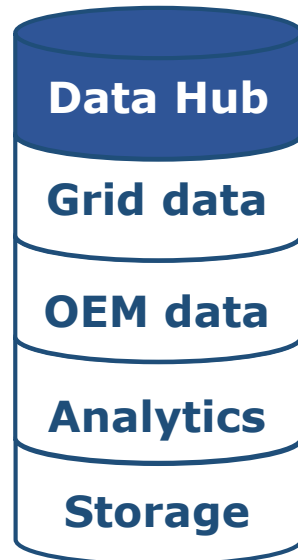
→ **Sell to OEM & analytic consultants**



General data

- Meteorological data
- Performance data
- Development plan

→ **Sell to OEM & GIS**



Sensitive grid data

- Energy flow
- Critical infrastructure
- Topology
- Switching state

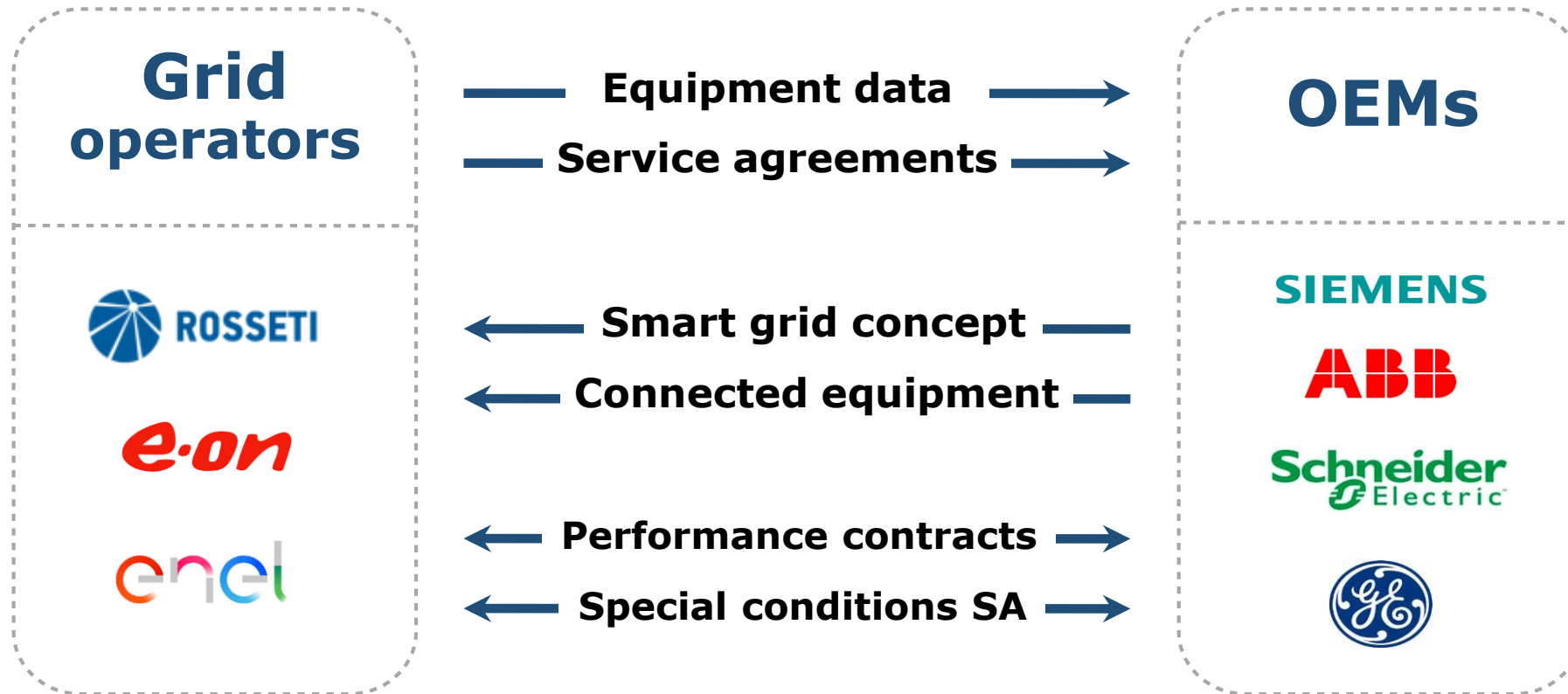
→ **Safely share with grid & regulators**

Challenge Solution **Business Model**



Innovative Collaboration Setup

... more than just customer relations



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Benefits for OEMs

SIEMENS

ABB

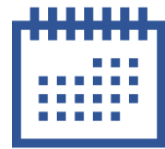
Schneider
Electric



Predictive maintenance



Permanent performance test



Long-term agreements

Benefits for Grid Operators



Improve of SAIDI & SAIFI



Optimization of investment



Decrease of field service reaction time

Pilot Cases

Implementation of a Business Model



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Kaliningrad region

- Most enhanced part of Russian grid
- Existing data can already be used
- Gaining experience with data trading in pilot region

Krasnodar region

- Smart grid concept in cooperation with OEMs
- Rural “non-smart” grid
- Installation of intelligent equipment
- Analysis of results and further actions

Make the most of your data!

Challenge► Solution► **Business Model**



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ROSSETI

Appendix



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Jim Mazurek

Managing Director – Utilities, Accenture
Strategy

DECEMBER 07, 2016

The data treasure chest: Is there a market to sell utility data?

By: Jim Mazurek

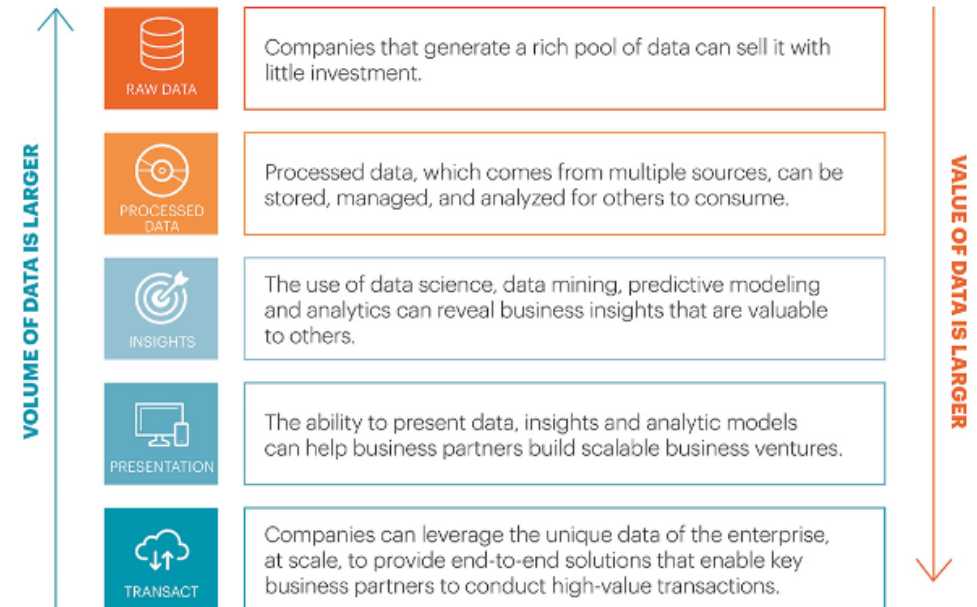
Utilities that have deployed smart meters are now awash in terabytes of valuable consumer data. According to Accenture estimates, in the United States, 2.8 billion data points are captured on a daily basis including energy usage, customer move-in/move-outs, payment/service history, and utility-program participation. This data can pave the way for future utility insights, but can also enable an emerging market for other companies looking to offer new energy-related products and services to consumers.

There are two distinct utility data offerings and associated “use cases” that can be considered: (1) utilities offering anonymized customer data to companies that are researching or designing new energy-related products and services and (2) utilities (with customer permission) offering specific customer data to enable other energy-related companies to explicitly target new customers. Accenture estimates these markets in the United States to be worth \$1.3 billion and \$3.3 billion, respectively.



Value of Smart Grid

WHAT CAN UTILITIES SELL?



Value of Smart Grid

Russia's Federal Grid Company CEO Oleg Budargin [said](#), "We haven't missed the smart grid train yet," and added that the upgrade of the grid could reduce electricity losses by 25 percent and [save](#) as much as 35 billion kWh of power.

RUSSIA TO INVEST IN SMART GRID ELECTRICAL INFRASTRUCTURE

December 22, 2014 | [thinkRussia](#) | [Business & Economy](#) | User Rated: ☆☆☆☆☆ No votes yet



As the world's third largest consumer of energy, Russia has announced plans to modernize its energy infrastructure, expanding its use of the smart grid electrical framework to make its energy transmission [more efficient](#) and less wasteful.

Smart grid technology is already in use in Russia, but as the current distribution infrastructure loses 12 percent of its transmitted energy (comparatively, Europe electrical network losses rest at only 4-9 percent), which adds up to a loss of \$10 billion per year, there is an incentive to expand the use of the technology. The Russian power transmission and distribution company, JSC Russian Grids, has identified the smart grid as a solution, and has secured partial funding from the National Welfare Fund (NWF).

In fact, according to a report by [Zpryme](#), Russia's smart grid system is expected to grow from \$5.5 billion in 2012 to \$15.7 billion by 2017.

[www.thinkrussia.com/business-economy/russia-invest-smart-grid-electrical-infrastructure]



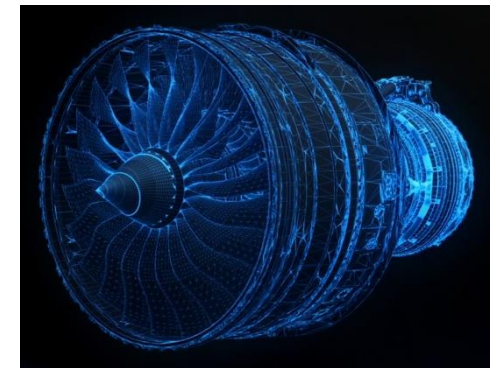
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The Rolls-Royce IntelligentEngine

With more people flying than ever before and an increasing demand for more efficient travel, Rolls-Royce has defined a vision for the future of aircraft power that will help deliver travelers more reliably and more efficiently than ever before. The IntelligentEngine vision is based on a belief that the worlds of product and service have become so closely connected that they are now inseparable, thanks to rapid advancements in digital capability. By the end of this year Rolls-Royce will be set to receive more than 70 trillion data points from its in-service fleet each year. [www.rolls-royce.com]

- Collaboration with customers
- Business model is based on data exchange
- Use data analytics, industrial artificial intelligence and machine learning
- Financial rebates for data sharing



[www.rolls-royce.com]



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imec R&D

Imec is the world-leading R&D and innovation hub in nanoelectronics and digital technologies. As a trusted partner for companies, startups and academia we bring together brilliant minds from all over the world in a creative and stimulating environment. By leveraging our world-class infrastructure and local and global ecosystem of diverse partners across a multitude of industries, we are accelerating progress towards a connected, sustainable future.

[<https://www.imec-int.com>]

- Leuven, Belgium
- Data is shared between all stakeholders
- Shared infrastructure
- New business partners can buy in into existing data pool
- Competitors willing to share data



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SIEMENS Sensformer™

SIEMENS Sensformer: Born connected

Transformers meet connectivity. Utilize the data your transformers provide to dive into digitalization and optimize your operations and business decisions.

Transformers already are a vital and decisive part of power grids – no matter if conventional or digital. The Sensformer™ will enable you to digitize this important keystone of your grid. Now your transformers are connective! A Sensformer™ contains the necessary sensors for entering the most important operating parameters – such as oil-level, temperature, LV winding current and GPS-positioning.

- Simplified fleet management
- Enhanced operations
- Increased availability



SIEMENS
Ingenuity for life



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Appendix

Investment

	Stage I: Up to 2022	Stage II: Up to 2025	Stage III: Up to 2030
Smart meters	120	33	5
Telemechanics	81	123	49
Connection	74	110	43
Cybersecurity	18	13	12
SCADA	48	150	103
GPS	5	10	-
Control systems	24	60	30
Digital secondary systems	-	75	113
Total	370 (5)	575 (7,8)	355 (4,8)

Figures in Billion Rubles (Billion Euro)

[Team Russia]

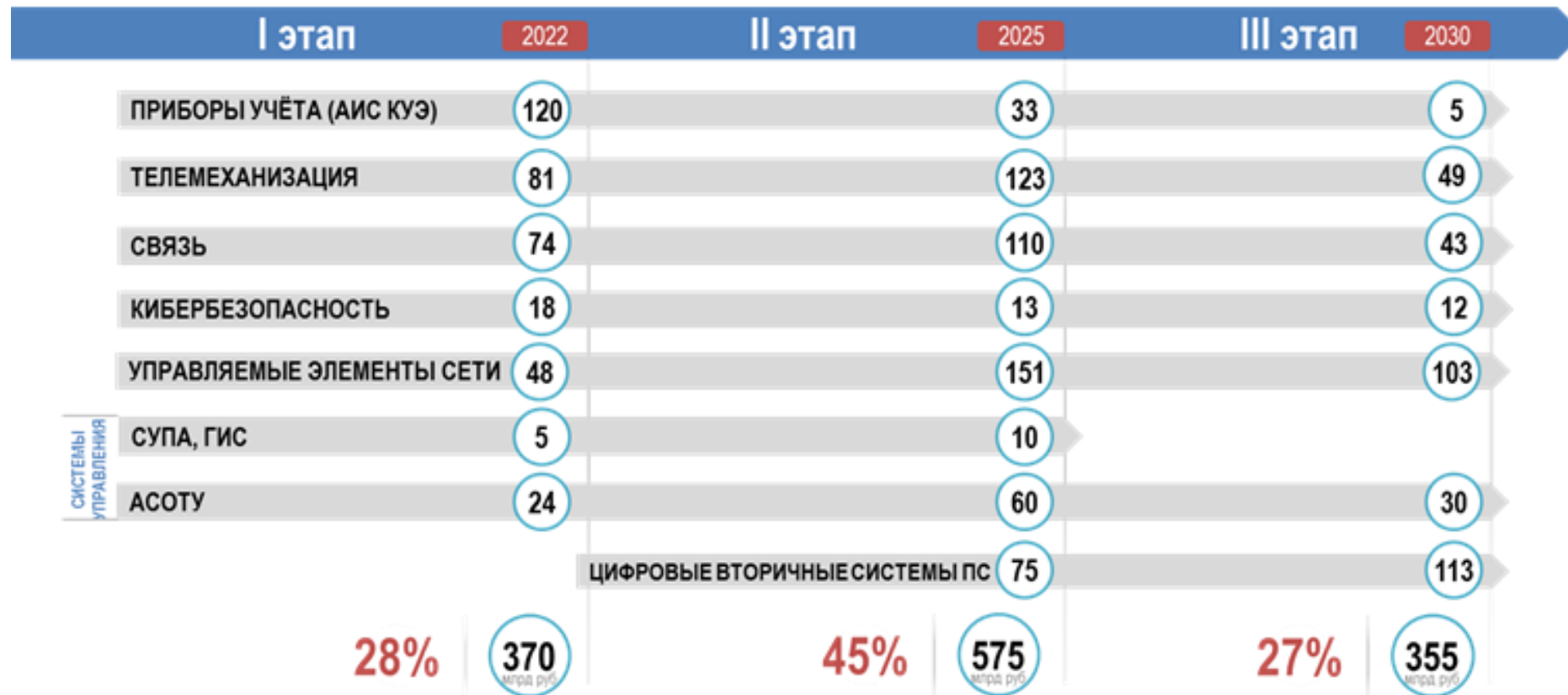


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Appendix

Investment



Figures in Billion Rubles (Billion Euro)

[Team Russia]