



ROSATOM
E N E R G Y
I N T E R N A T I O N A L

JSC REIN

Risk management in BOO projects

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- Nota Bene

- REIN was established in 2011 as an affiliate of Russian State Corporation “Rosatom” to promote Russian nuclear technologies in the world market
- Since May 2015, REIN focuses on international BOO-Projects – NPP construction and operation via shareholding in project companies
- Two BOO (“Build-Own-Operate”) projects under REIN management:

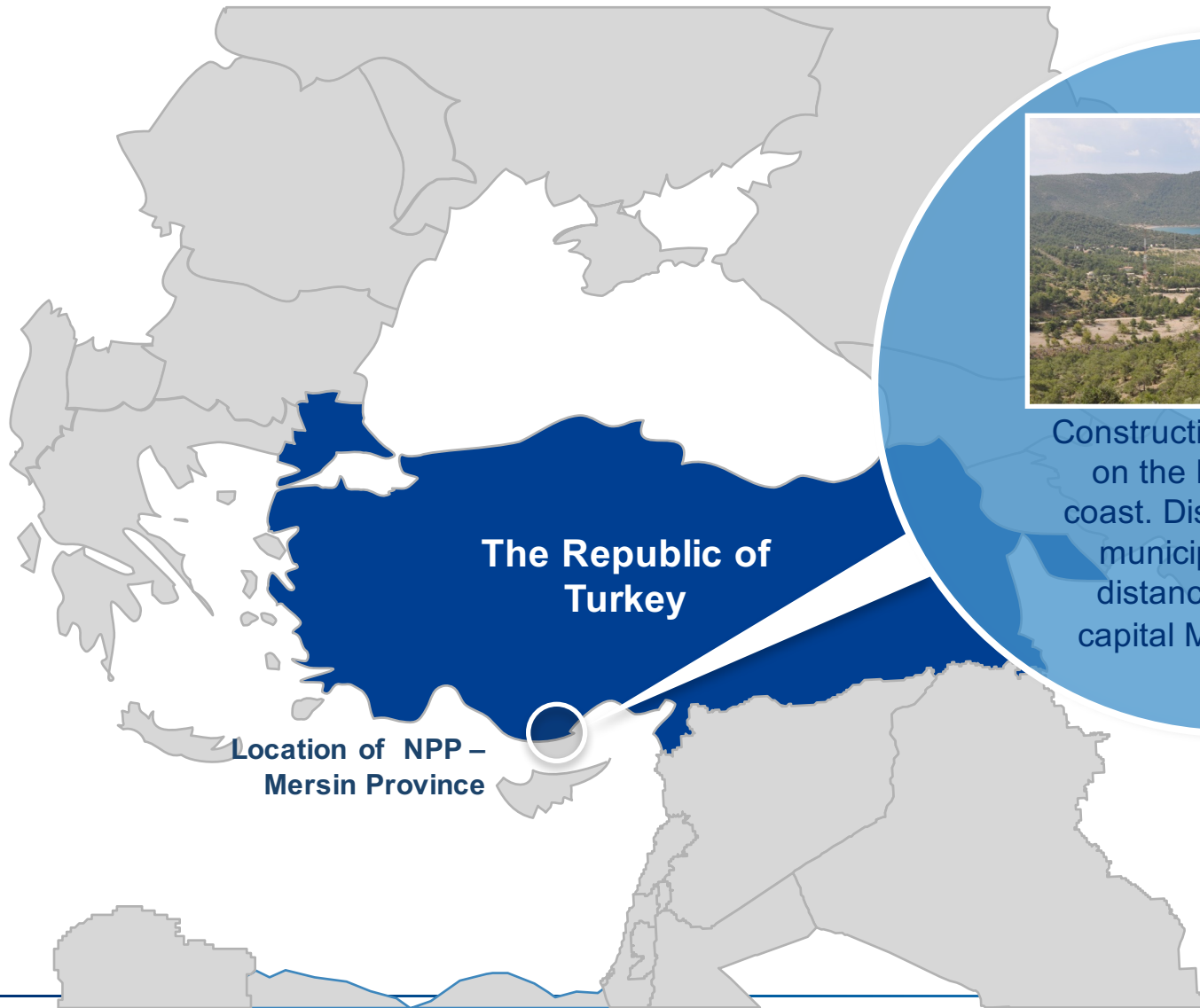
❑ FINLAND

REIN holds 34% shares in Fennovoima Oy, which is the Owner of single-unit Hanhikivi-1 NPP in Finland. RAOS Project (REIN 100% affiliate) is the general Supplier of Hanhikivi-1 NPP

❑ TURKEY

Today, REIN is a majority shareholder of JSC AKKUYU NUCLEAR company, implementing the project of construction and subsequent operation of Akkuyu NPP in Mersin Province of Turkey.

LOCATION OF AKKUYU NPP



Construction site is located on the Mediterranean coast. Distance to Gulnar municipality - 37 km, distance to provincial capital Mersin - 140 km

AKKUYU NPP, GENERAL OVERVIEW



Inter-Governmental Agreement (IGA) between the Russian Federation and the Republic of Turkey on cooperation in the area of construction of **Akkuyu NPP** was signed in 2010



Planned nuclear capacity **4 x 1200 MW, VVER reactor technology**



Electricity generation license **2017**



Unit 1 COD - by IGA within 7 years of CL.
Expected operational lifetime - **60 years**



The project is unique due to it's **size and complexity**

- **The first NPP** in Turkey
- **The largest overseas project** of Rosatom
- One of the first **BOO-projects** (Build – Own – Operate) worldwide

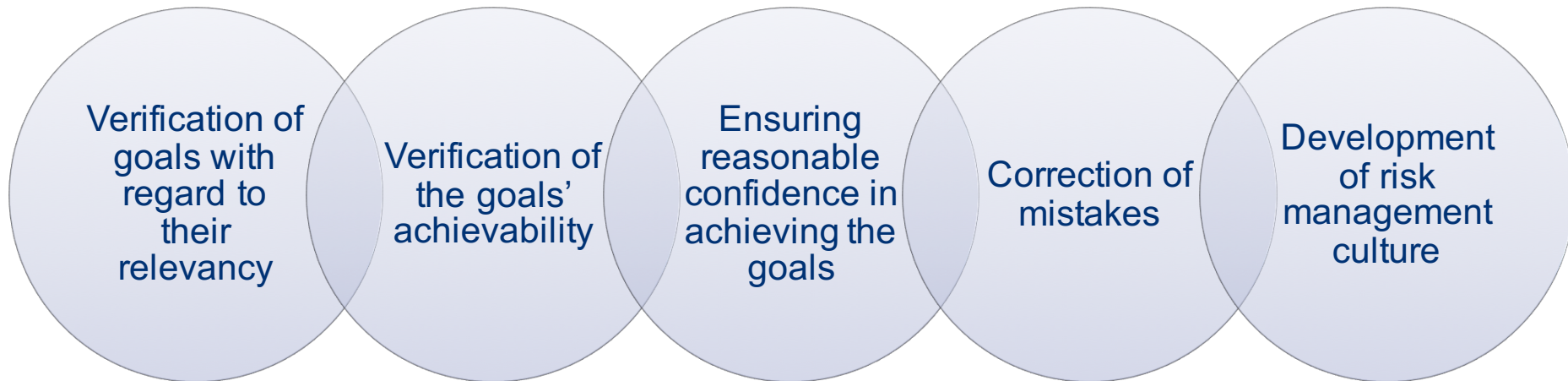


According to the PPA¹ the majority of electricity will be purchased by **TETAS** (State Power Wholesale Company of Turkey), the remaining part will be sold on the market

- International standard ISO 31000:2018 “Risk management — Guidelines”.
- COSO
- IAEA
- FERMA etc
- Law and regulatory requirements of the location country :
 - STUK YVL guides, Finland
 - TAEK regulations, Turkey
- Intergovernmental regulations
- ROSATOM regulations
- EPC contract
- Project Documents (plans, manuals and procedures)

PURPOSE OF RISK MANAGEMENT

Risk is a potential event that may cause negative effect on achievement of the set **goals** of an organization.



Management of organization's risks is a **process** performed by the board of directors, managers and other employees, which starts from the **design of the strategy and covers all the activities of organization**.

MAIN GOALS OF RISK MANAGEMENT SYSTEM (RMS) IN BOO-PROJECTS OF ROSATOM

WHAT

HOW

Reporting of complete and fair risk information to support management decision-making process

- ❖ Implementation of monitoring procedures and alerts of risks.
- ❖ Risk management process' integration into the management decision-making
- ❖ Timely informing about threats and opportunities

Strategic goals achievement support

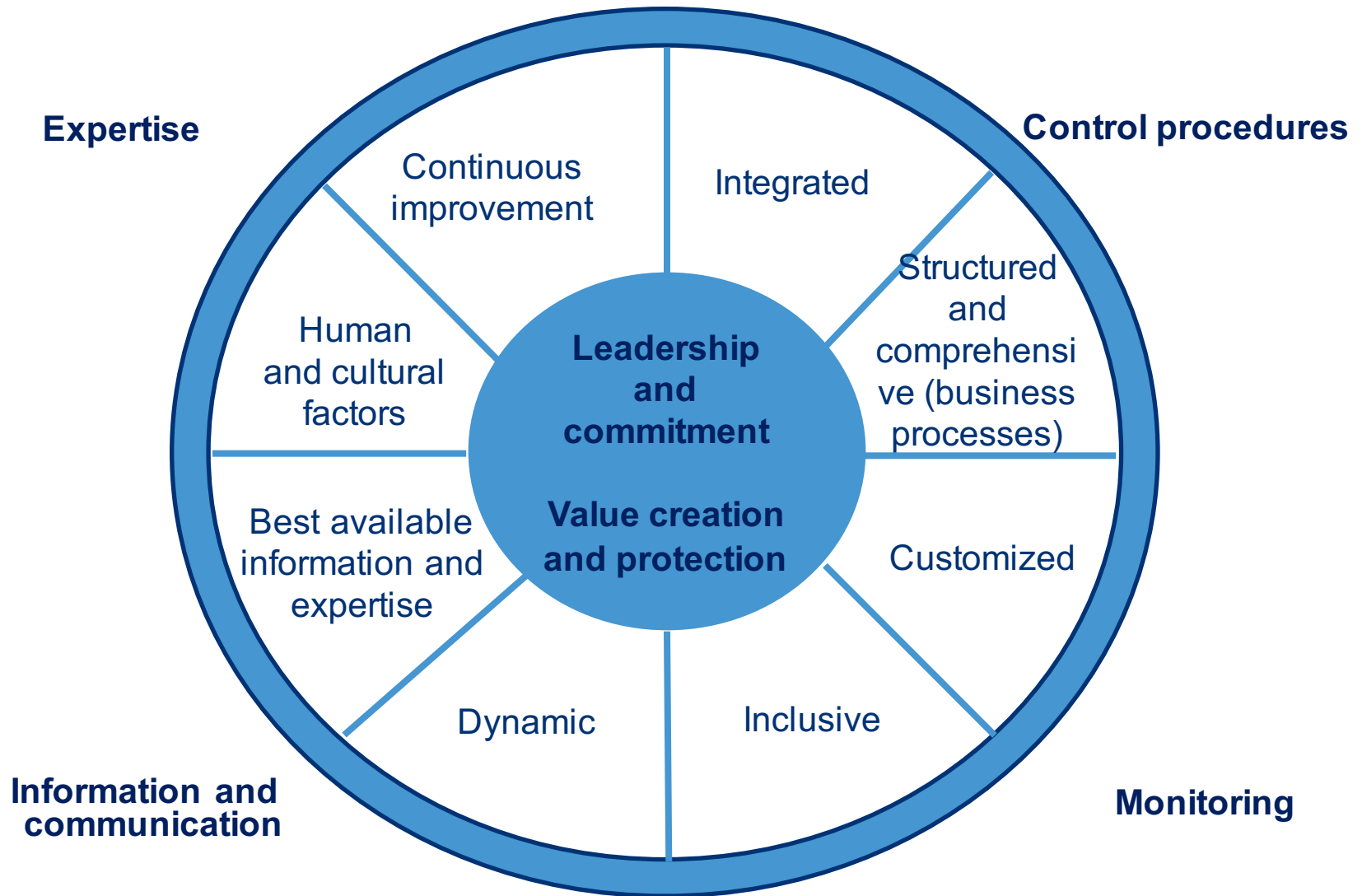
- ❖ Preventive actions for mitigation of risk's influence on objectives
- ❖ Implementation of monitoring procedures and alerts of risks.
- ❖ Risk management activities' monitoring and update

Compliance with the risk management requirements of all stakeholders

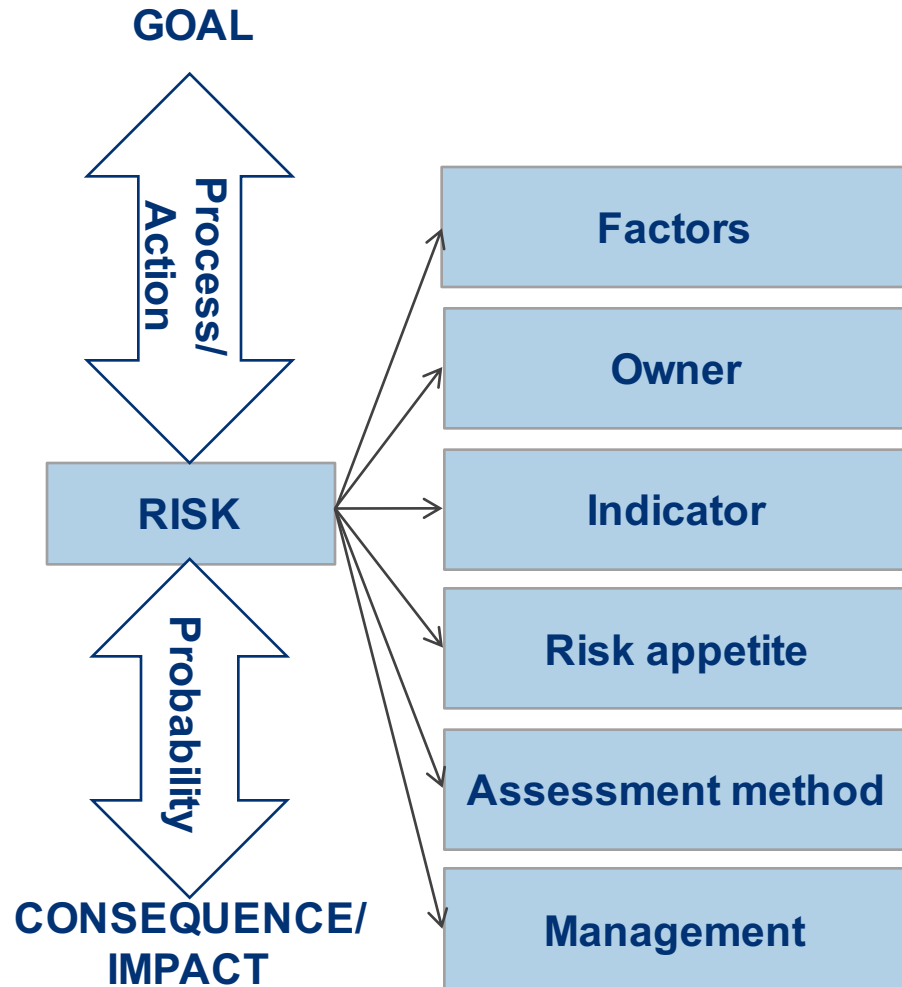
- ❖ Preparation of the programs responding to risk cases
- ❖ Motivation of employees involvement in the RM
- ❖ Risk management procedures' documentation

Support of sustainable development and effectiveness of the business

- ❖ Development of unify tools for risks identification, assessment and management
- ❖ Determination of risk owners
- ❖ Identification, assessment and management of business risks



KEY ELEMENTS



Strategic management

1. Identification



2. Assessment



3. Management



4. Monitoring



5. Reporting

Budget planning

PROJECT RISK MANAGEMENT SYSTEM STRUCTURE IN PROJECTS OF ROSATOM



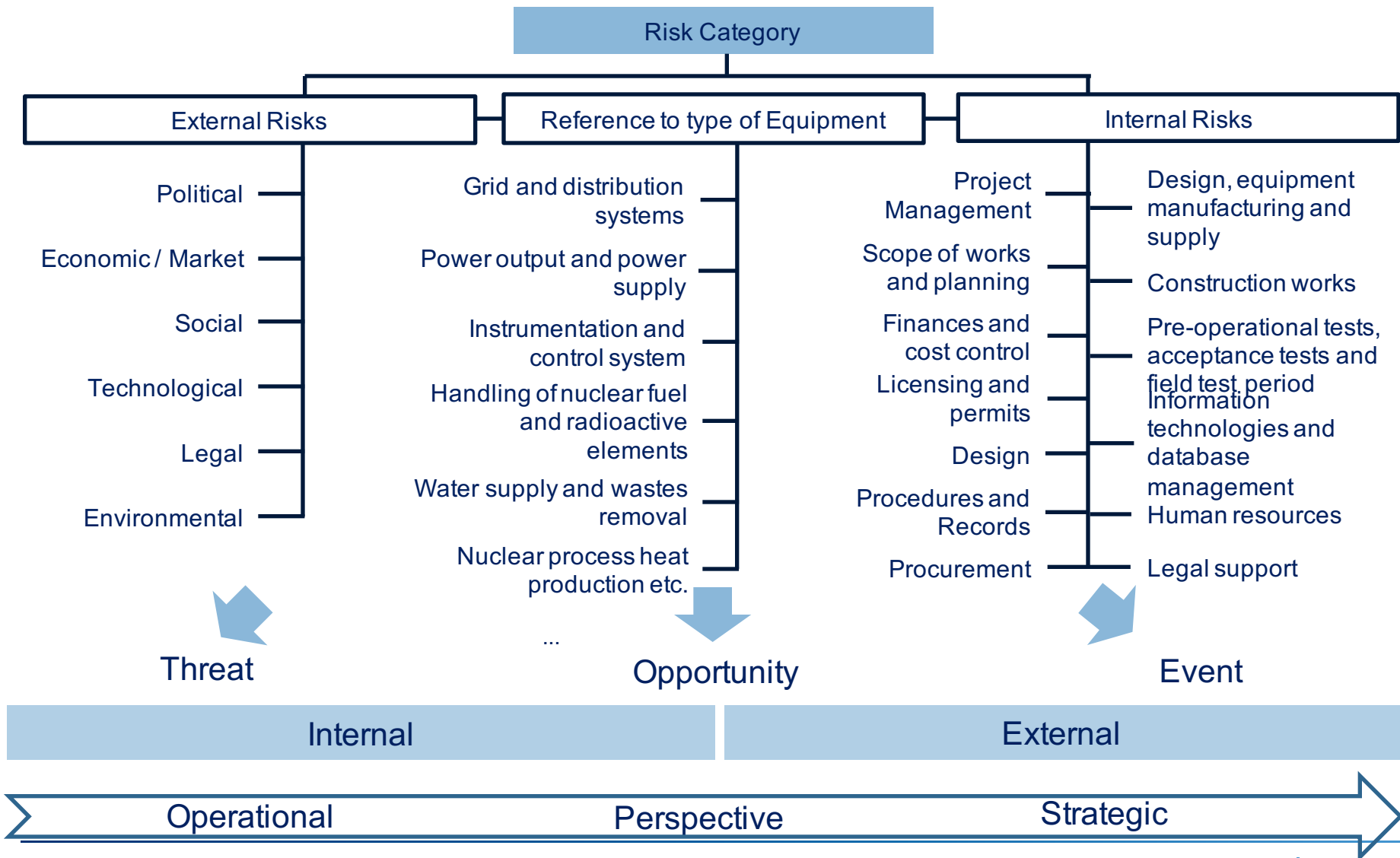
KEY FUNCTIONS AND RESPONSIBILITIES OF RO AND RISK MANAGEMENT DIVISION (RMD) IN BOO-PROJECTS OF ROSATOM

RO

- Implementation and maintenance of sound controlling system according to stakeholders' requirements
- Implementation and maintenance of RMS in the Project and at the level of investment holding company
- Essence/substance review and analysis of key processes and risk cases
- Support of all Project's participants and the relevant flow of information
- External compliance in corporate governance, external financing, investors' and partners' relations, covenants, regulations and normatives, obligations etc.
- Approval (sometimes *veto*) or agreeing of key documents (eg. strategy, regulations, all outgoing correspondence containing information which can be viewed as obligations, formal position, key messages, including key contracts and agreements, term-sheets, roles matrixes, RfP and mandates to financial institutions, information for corporate governance bodies, press-releases)

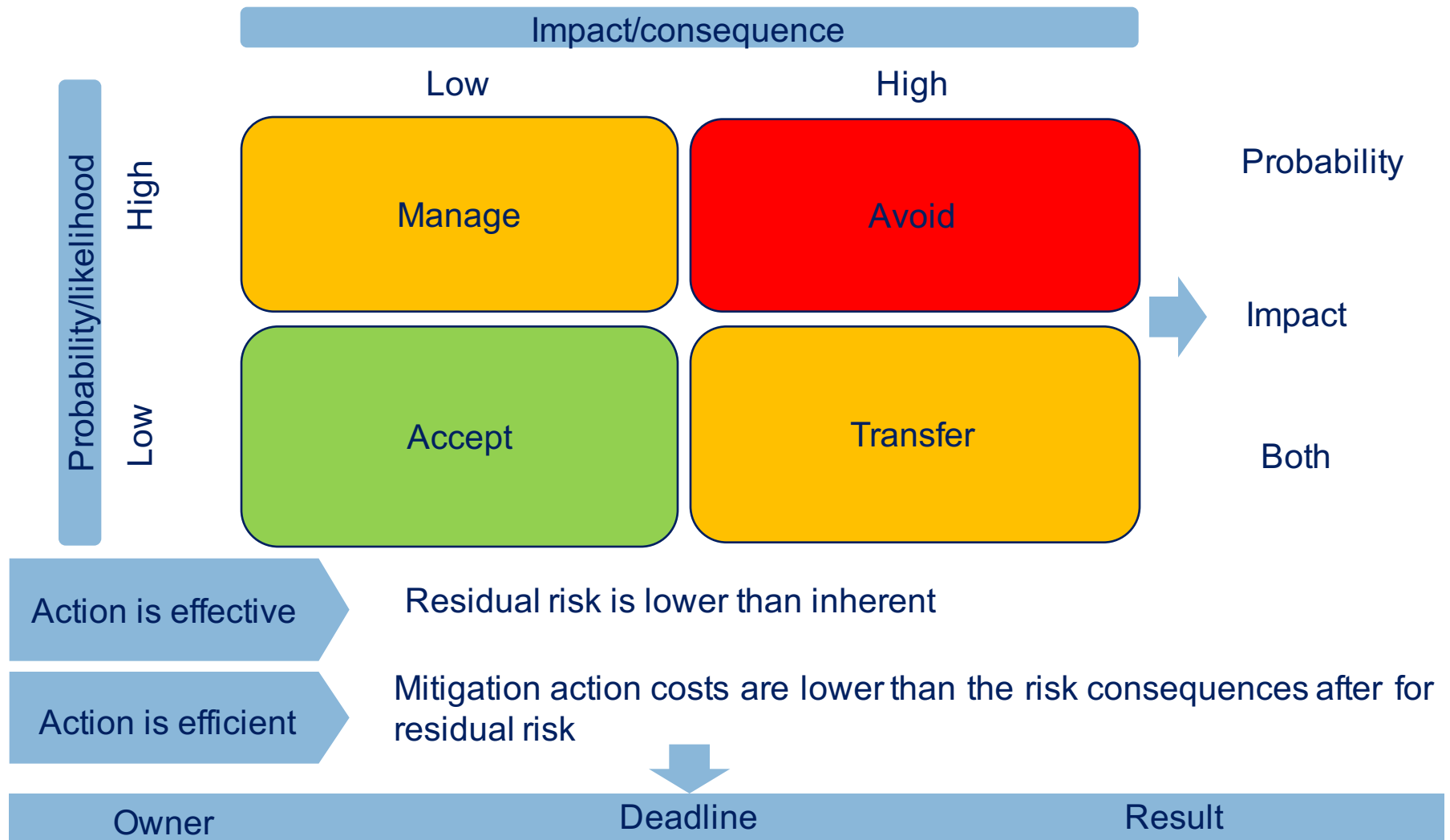
RMD

RISKS CLASSIFICATION AND STRUCTURE IN BOO PROJECTS OF ROSATOM



Approach	Comments
Benchmark	Information should be relevant and comparable
Expert assessment	The experts should have relevant experience, there should be more than one expert
Sensitivity analysis	Should examine the key drivers
Scenario analysis and decisions trees	Usually includes worst –case, should examine key drivers and branching
Imitation modelling and correlation analysis	Should have reliable inputs which have true correlation with the results and works only for environment which is not highly dependent on the specific non-statistical factors (as human, political etc)





SOME SPECIFIC OUTCOMES AND CONNECTIONS OF THE ASSESSMENT AND TREATMENT PROCESS IN BOO-PROJECTS

Think about influence on and interconnections of key risks, their consequences and management measures with:

- Critical path and schedules at every level
- 3d-model
- Economical impact
- Supply-chain
- Resource plan
- Covenants and obligations
- Reserves
- Reputation
- ...



- Estimated reserve based on various risk assessment approaches and expertise
 - Manage identified risks or “known-unknown”
 - Controlled by the project company. The project manager has authority to use it whenever any risk occurs.
- A figure which is defined according to the organization’s policy as a percentage of the total project cost or duration of the project
 - Manage unidentified risks or “unknown-unknown”
 - Is not a part of the cost baseline, and the project manager needs management’s permission to use this reserve

Only important risks need to be analyzed deeply – remember the goals and use lessons learned

- ✓ Resources are limited
 - ✓ 20/80
 - ✓ Use multi-dimensional approach (goals, levels and requests)
 - ✓ Results should be really useful and informative
 - ✓ The real purpose, goal, target at every level and for each step
- ✓ We manage where it is really possible and needed

Keep it simple, honest and useful

- ✓ Black swans - area of unknown

THANK YOU
