



BANKING UNIVERSITY

LVIV INSTITUTE



From the possible to the real!



Information Systems in Economic Security Management

7. International Week

IT for Practice 2016

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AGENDA



- ***Economic security in a system of National Security of Ukraine and EU***
- ***The concept of economic security of the banking sector***
- ***Systems approach to the economic security management of the banking sector***
- ***Information technologies in the economic security management systems***
- ***Conclusions and recommendations***

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ВЕРХОВНА РАДА УКРАЇНИ
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Законотворчість Законодавство Очищення влади Міжнародна діяльність Інформація Контакти

Filter in names of terms (*економічна безпека*)

Documents with terms Filter in names of terms List of terms Make as home page Hide side menu

Фільтр за словами в назві:

* тільки українські (або рос.) літери, мінімальна довжина слова 3 символи...

By alphabet: А Б В Г Д Е Є Ж З И І Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Э

Search results Number: 96 terms

- **Безпека** (9)
- **Безпека** польові (15)
- **Економічна** вигода (2)



EUROPA > EU law and publications > EUR-Lex > Search results

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en > bg cs da de el en es et fi fr ga hr hu it la lt lv mt nl pl pt ro sk sl sv (domain: ECONOMICS, type of search: Term)

Result 1- 2 of 2 for economic security

ECONOMICS [COM]

[Full entry](#)

EN [Economic Security](#) Council

★★★★★ @



ES Consejo Económico de Seguridad

★★★★★ @

The term "економічна безпека (economic security)" in the legislation of Ukraine and in EU legislation are not defined

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- The National Security of Ukraine in the economic sphere is “providing conditions for sustainable economic growth by environmentally not exhausting method and increasing of competitiveness of the economic”.
- In our opinion, “providing of the conditions” means the formation of new and support of existing opportunities (chances) and protection against threats (hazards) within the necessary and sufficient to implement intended goals of the Government.
- The dual nature of risk combines two main concepts: “the favorable conditions (chance)” and “the hazard (risk of losses)”.

Risk as a Chance and as a Hazard




- Risk - effect of uncertainty on objectives
- Note 1 to entry: An effect is a deviation from the expected — positive and/or negative.
- Note 2 to entry: Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).
- Note 3 to entry: Risk is often characterized by reference to potential events and consequences, or a combination of these.
- Note 4 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood (2.19) of occurrence.
- Note 5 to entry: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.

[SOURCE: ISO Guide 73:2009, definition 1.1]

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- 
- Sharpening of the socio-political situation and crisis phenomena in the Ukrainian economy are threatening the economic security of the state, especially its banking sector.
 - Risks of functioning of the banking sector are often significantly higher than in other areas. This is its specificity.
 - Risks of the banking sector can have critical consequences for the economic security of business entities of all levels.
 - 111 billion UAH are the potential losses of Bank customers, which were withdrawn from the market. Of them, 52 billion are the deposits of economic entities



All this:

- threatens the national security
- adversely influence on the way out of the systemic crisis of Ukraine's economy,
- requires the formation of an effective system risk-based management of economic security of the banking sector on the basis of a systematic approach with using the latest information technology.

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NATIONAL SECURITY

THE SPHERES OF NATIONAL SECURITY

Foreign
political
sphere

Sphere of the
state security

Sphere of
economy

Social and
humanitarian
sphere

Scientific and
technological
sphere

Military and
State Border
Guard

Internal
political
sphere

Ecological
sphere

Information
sphere

THREATS, RISKS, CHANCES

Cross-sphere threats, risks, chances

Threats, risks, chances for specific spheres of national security

Threats, risks, chances for specific objects of national security

THE SUBJECTS OF THE NATIONAL SECURITY MANAGEMENT

THE SUBJECTS OF THE NATIONAL SECURITY MANAGE MENT

President

Parlament

Government

NSDC

Ministries

Central Executive Authorities

NBU

Courts

Prosecutors

NABU

Local EA

Armed
Forces

Force structures

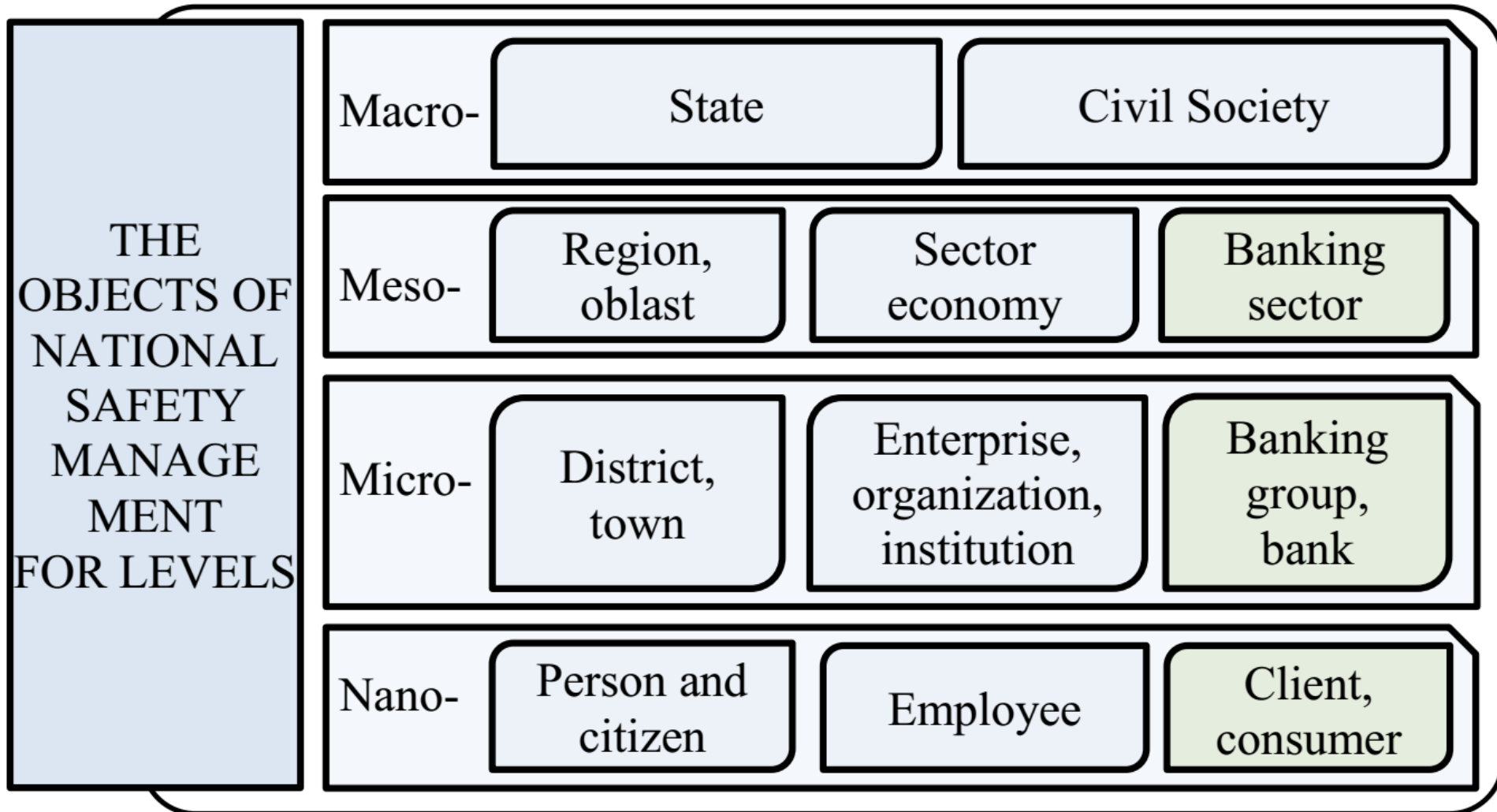
Civil
Protection

Citizens

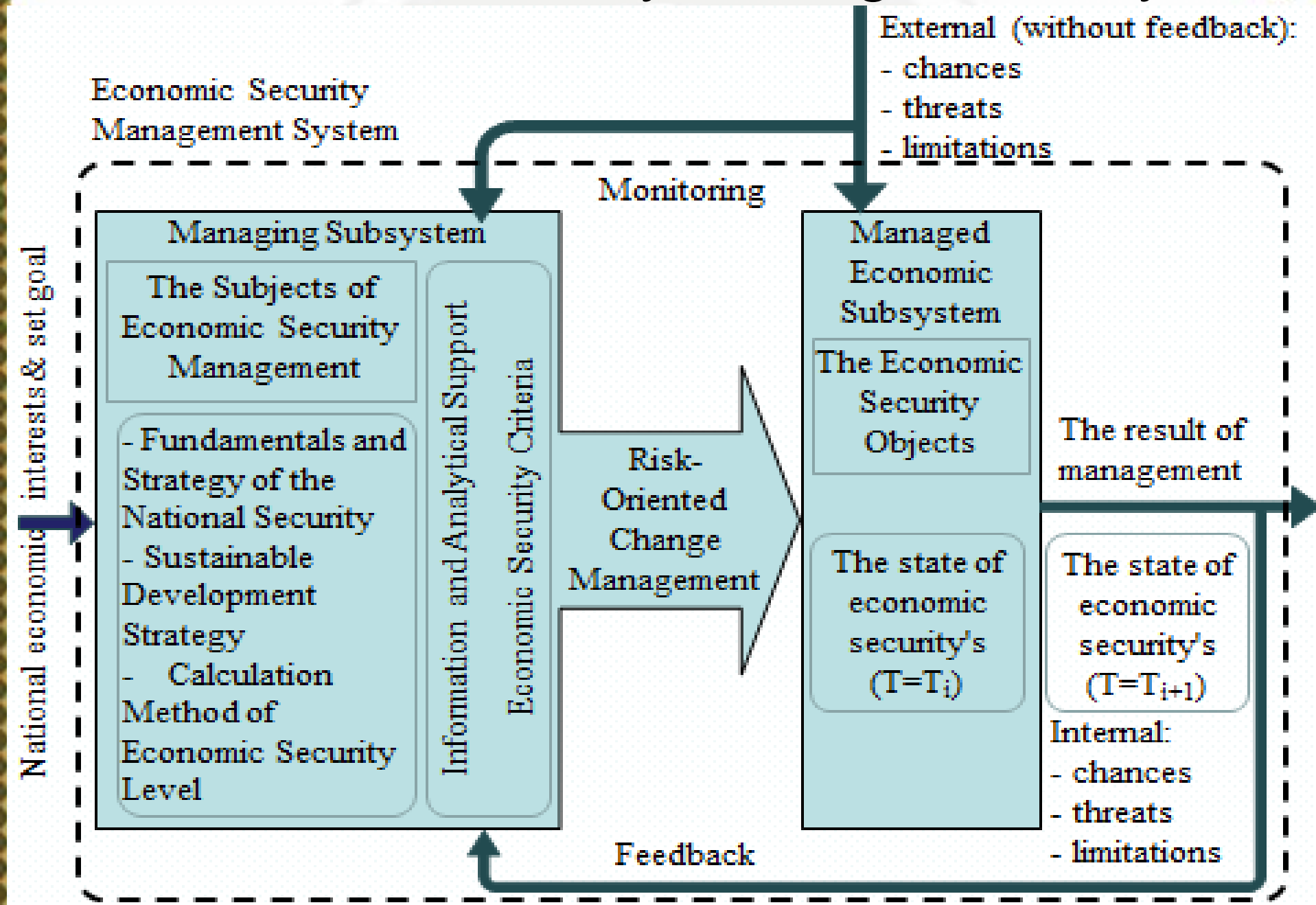
Associations of citizens



THE OBJECTS OF NATIONAL SAFETY MANAGEMENT FOR LEVELS



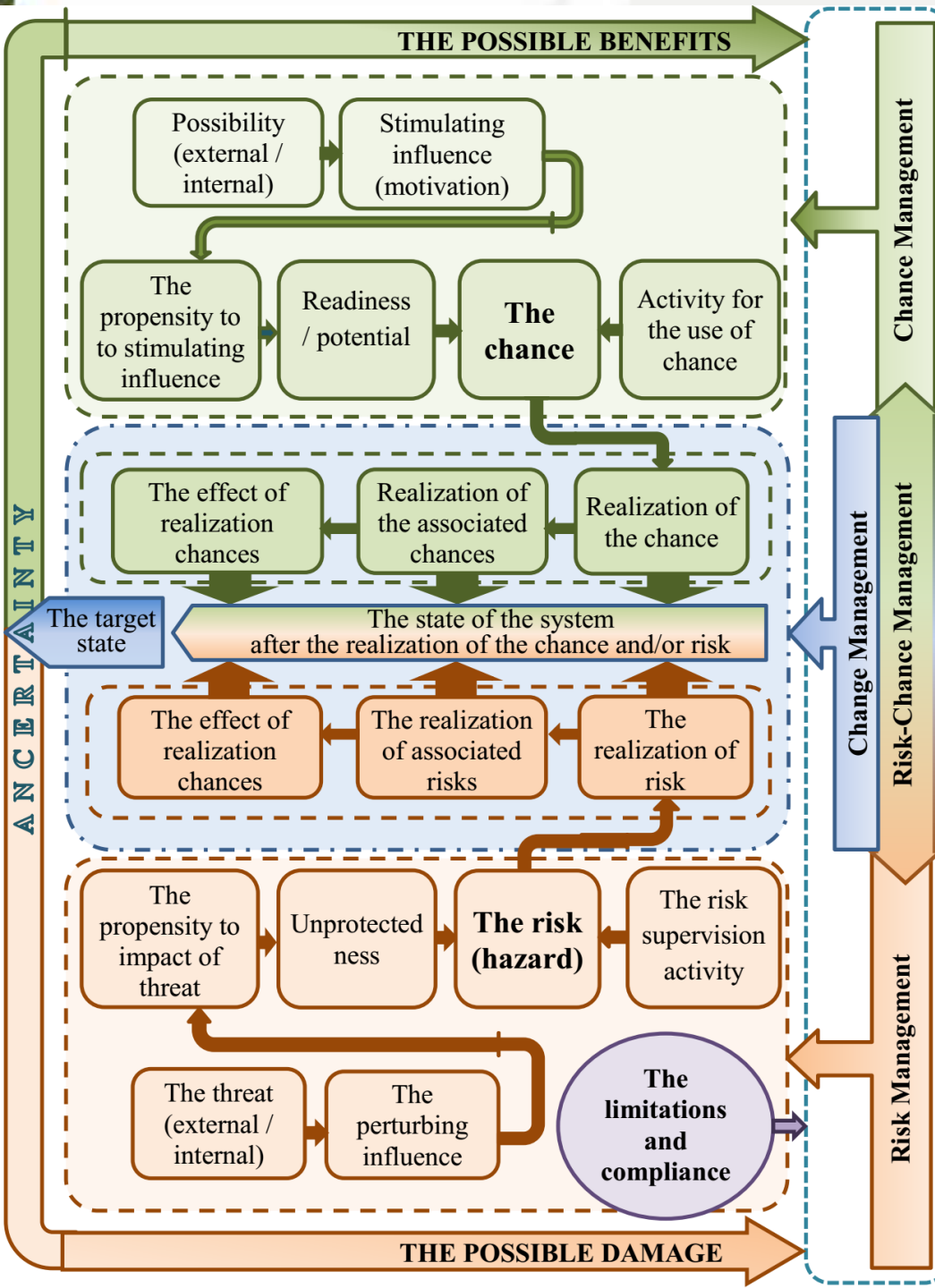
The Economic Security Management System





Managing subsystem:

- defines the method of calculating target values and criteria of the economic safety of controlled subsystem;
- performs a continuous monitoring of the state of economic security according to certain criteria, and monitoring of external and internal chances, threats and existing limitations in relation to the management arrangements;
- provides continuous situational analysis and forecasting with the aim of making proactive decisions;
- performs risk-oriented change management to ensure the target values of criteria of economic security of the managed subsystem;
- performs continuous audit of the economic security management processes.



The integrated
process
of risk-based
economic
security
management

UNCERTAINTY

The target state

The state of the system after the realization of the chance and/or risk

The effect of realization chances

The realization of associated risks

The realization of risk

The propensity to impact of threat

Unprotectedness

The risk (hazard)

The responsibility of supervisory activities

The threat (external /

The perturbing

The limitation

THE POSSIBLE BENEFITS

Possibility
(external /
internal)

Stimulating
influence
(motivation)

The
propensity to
to stimulating
influence

Readiness
/ potential


**The
chance**

Activity
the use
chance

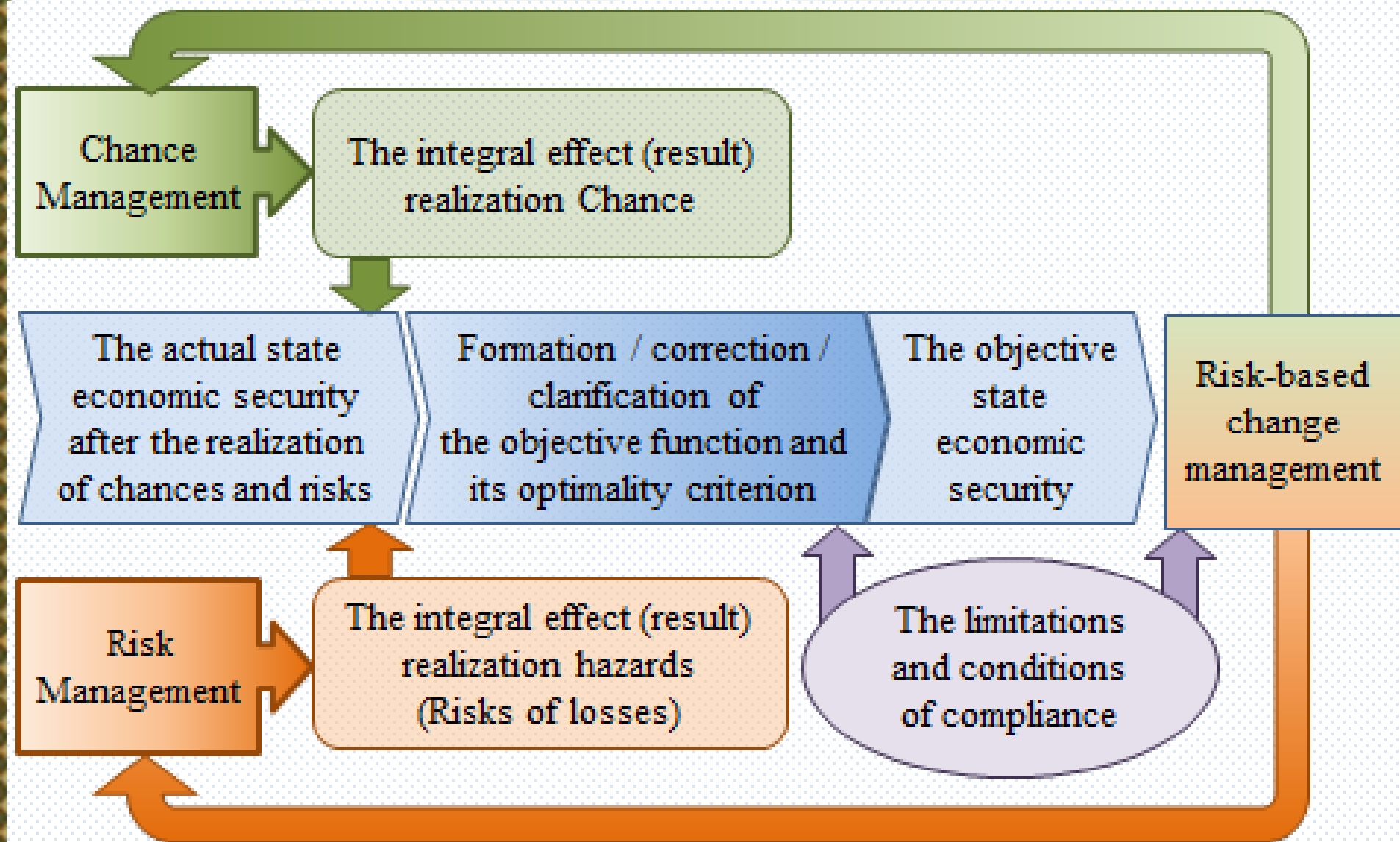
The effect of
realization

Realization of
the associated

Realization of
the chance

- 
- In the process of functioning of economic security management system (ESMS) must dynamically be formed (corrected, clarified) the objective function and its optimality criterion.
 - When choosing a decision is often present and the uncertainty of the goals. Decision-making occurs not only under uncertainty but also creates it.
 - In this case the principle of uncertainty in ESMS will be realized cyclically as in a system which self-developing and self-improving


Cyclical realization of the principle of uncertainty



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The use of technology of expert-analytical situational centers (EASC) is promising to ensure a continuous process of information-analytical support real-time management decisions for economic security.

The National Security and Defense Council of Ukraine (NSDC)

- The NSDC Military Cabinet
- The Main Situational Center of Ukraine
- The network of situational centers of the defense and security sector bodies, central and local executive authorities

The Hierarchical System of Expert and Analytical Situational Centers



The Hierarchical System of Expert and Analytical Situational Centers

Macro-

The Main Situational
Center of Ukraine

The NSDC Military
Cabinet

Meso-

EASCs of
the defense
and security
sector
bodies

EASCs of the
central and
regional
executive
authorities

EASCs of the
banking and
other sectors
of economy

Micro-

EASCs
of the local executive
authorities

Local EASCs
of the enterprises,
banks, organizations

Nano-

Personal EASCs of the
civil society leaders

Personal EASCs of
the managers

IT for Information and Analytical Support

- Decision Support System (DSS),
- Expert Systems (ES),
- Geographic Information Systems (GIS),
- Neural Fuzzy Systems (NFS),
- Automated Systems of Expert Estimation (ASEE),
- Business Intelligence and Advanced Analytics (BI&AA),
- Big Data (BD) and other.



IT for continuous monitoring, auditing and Risk-Oriented Change Management

- GRC (Governance, Risk and Compliance) Technology
- Business Continuity Management Planning
- Audit Management
- Risk Management
- Operational Risk Management (ORM) Technology

Software tools for economic security management systems



- Currently there are no ready-made information and communication systems for the economic security management at different levels (macro, meso, micro, nano).
- The necessary system integration of individual specialized IT-solutions from leading companies.
- To select the best solutions on the market we can use the results of market research of IT-solutions.



The business intelligence and analytics market

- Analytic applications,
- BI platforms,
- CPM suites,
- Advanced analytics
- Performance management software.

Researches

Gartner “Magic Quadrant”

(<http://www.gartner.com>)

“Chartis RiskTech100”

(<http://www.chartis-research.com>) and others.



The Use Cases, Critical Capabilities and Evaluation Criteria

BI and Analytics Platforms		Advanced Analytics Platforms		GRC software platforms	
The Use Cases	Critical Capabilities	Criteria	Evaluation Criteria	The Use Case	Evaluation Criteria
<ul style="list-style-type: none"> ▪ Agile Centralized BI Provisioning ▪ Decentralized Analytics ▪ Governed Data Discovery ▪ Embedded BI ▪ Extranet Deployment 	<ul style="list-style-type: none"> ▪ Infrastructure (4) ▪ Data Management (3) ▪ Analysis and Content Creation (4) ▪ Sharing of Findings (3) 	1 Platform breadth / applicability 2. Market presence 3. Functionality	<u>Completeness of Vision (8)</u> <ul style="list-style-type: none"> ▪ Market Understanding ▪ Marketing Strategy ▪ Sales Strategy ▪ Offering (Product) Strategy ▪ Business Model ▪ Vertical/Industry Strategy ▪ Innovation ▪ Geographic Strategy 	<ul style="list-style-type: none"> ▪ IT Risk Management ▪ Operational risk management ▪ Audit management ▪ Vendor risk management ▪ Business continuity management ▪ Corporate Compliance and Oversight 	<ul style="list-style-type: none"> ➤ Completeness of Vision (8) ➤ Ability to Execute (7) <i>(Gartner)</i>
			<u>Ability to Execute (7)</u> <ul style="list-style-type: none"> ▪ Product or Service ▪ Product or Service ▪ Sales Execution/Pricing ▪ Market Responsiveness/Record ▪ Marketing Execution ▪ Customer Experience ▪ Operations 	ORM & GRC	<ul style="list-style-type: none"> ➤ Completeness (15) ➤ Market Potential (10) <i>(Chartis Research Ltd.)</i>

High-Level Comparison of Traditional and Modern BI and Analytics Platforms



Source: Gartner (February 2016)

Analytics Workflow Component	IT-Centric Reporting and Analysis Platform	Modern BI and Analytics Platform
Data Source	Upfront dimensional modeling required (IT-built star schemas)	Upfront modeling not required (flat files/flat tables)
Data Ingestion and Preparation	IT-produced	IT-enabled
Content Authoring	Primarily IT staff, but also some power users	Business users
Analysis	Structured ad hoc reporting and analysis based on a predefined model	Free-form exploration
Insight Delivery	Distribution and notifications via scheduled reports or a portal	Delivery via sharing and collaboration, storytelling, and open APIs

In the 2016 Gartner defined 14 critical capabilities and 5 use cases

- Security and User Administration,
- Data Source Connectivity,
- Cloud BI,
- BI Platform Administration,
- Self-Contained ETL and Data Storage,
- Self-Service Data Preparation,
- Governance and Metadata Management,
- Embed Advanced Analytics,
- Interactive Visual Exploration,
- Analytic Dashboards,
- Mobile Exploration and Authoring,
- Embed Analytic Content,
- Publish Analytic Content Collaboration and Social BI.



The Gartner “Magic Quadrant” for Business Intelligence and Analytics Platforms

Shift from the centralized top-down BI platforms of IT organizations to agile workflows and self-service analytics

Tableau
Qlik
Microsoft

SAS
Alteryx
SAP
MicroStrategy

Logi Analytics
IBM
ClearStory Data
Pentaho
TIBCO Software
BeyondCore

Birst

Domo
GoodData

Salesforce

Board International

Sisense

Information Builders

Pyramid Analytics

Yellowfin

Platfora

Datawatch

NICHE PLAYERS

VISIONARIES

ABILITY TO EXECUTE

COMPLETENESS OF VISION

As of February 2016

Advanced Analytics



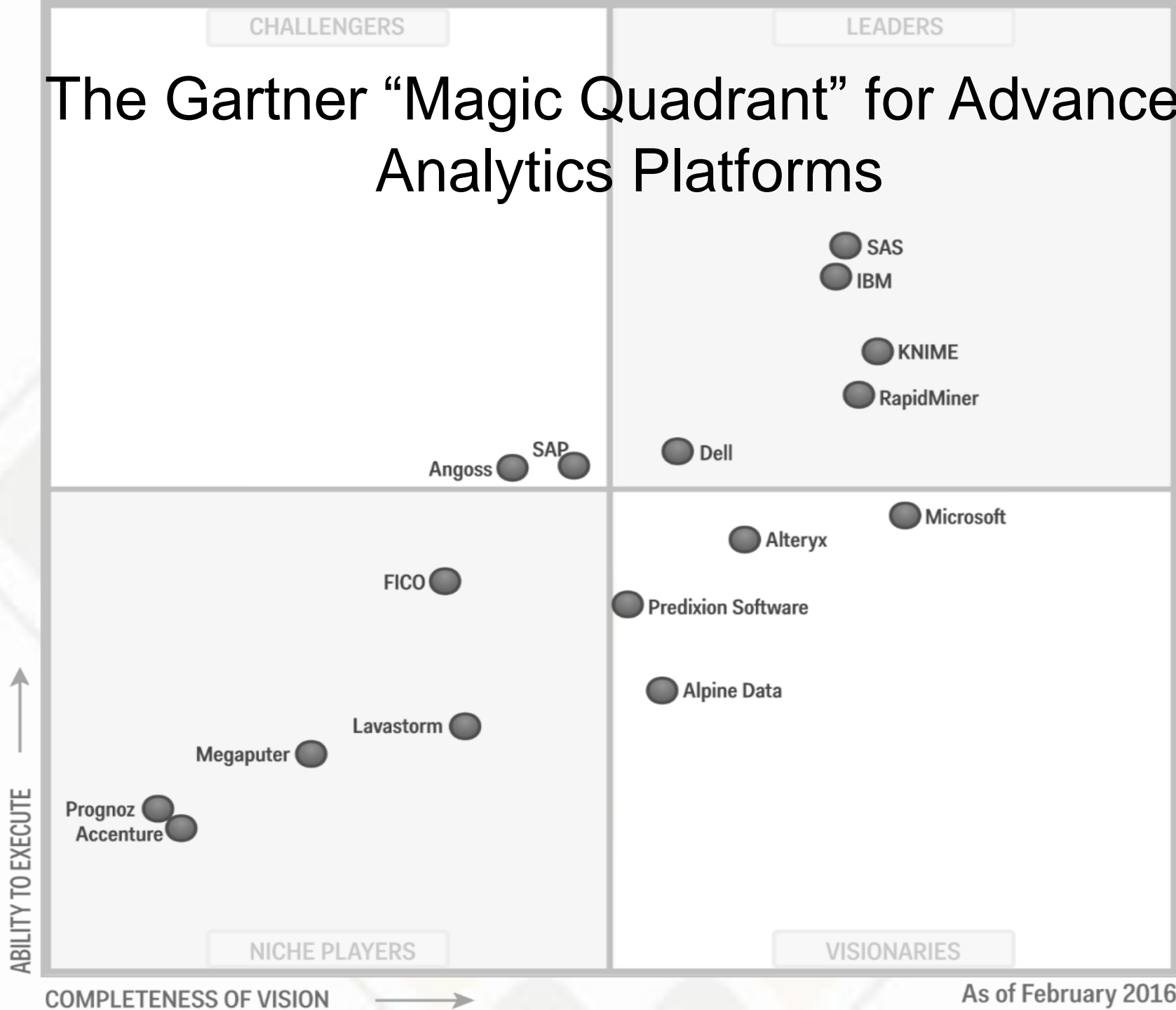
Gartner defines advanced analytics as “the analysis of all kinds of data using sophisticated quantitative methods such as:

- statistics,
- descriptive and predictive data mining,
- machine learning,
- simulation and optimization

to produce insights that traditional approaches to business intelligence (BI) — such as query and reporting — are unlikely to discover”.



The Gartner “Magic Quadrant” for Advanced Analytics Platforms





Focus of the Magic Quadrant 2016

- Use a visual workflow environment (as opposed to a coding-based approach) targeting core data scientists and, increasingly, "citizen data scientists" and advanced business analysts.
- These platforms also help experienced data scientists become more productive by offering reusability of workflows, more automation, analytic guidance and accelerators for common use cases.

Hype Cycle for GRC Technologies, 2015

John Wheeler

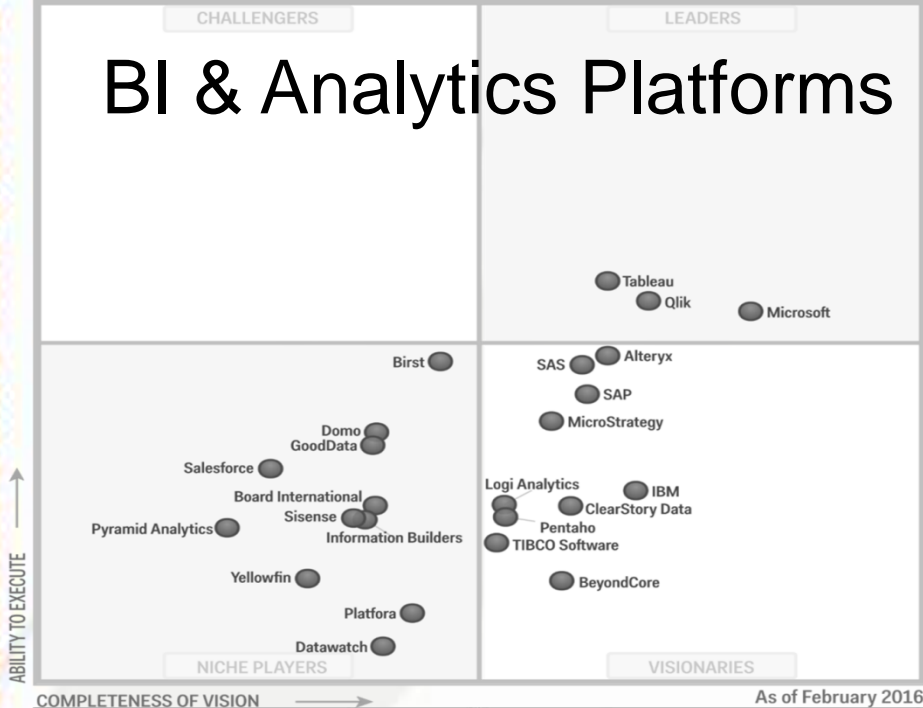
Magic Quadrant for Business Continuity Management <i>Roberta Witty</i>	Magic Quadrant for IT Vendor Risk Management <i>Chris Ambrose</i>	Magic Quadrant for IT Risk Management <i>Paul Proctor</i>	Magic Quadrant for Operational Risk Management <i>John Wheeler</i>	Market Guide for Audit Management <i>Khushbu Pratap</i>	Market Guide for Corporate Compliance & Oversight <i>Jeffrey Wheatman</i>	Market Guide for Enterprise Legal Management <i>Jie Zhang</i>
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Market Guide for GRC Software Platforms

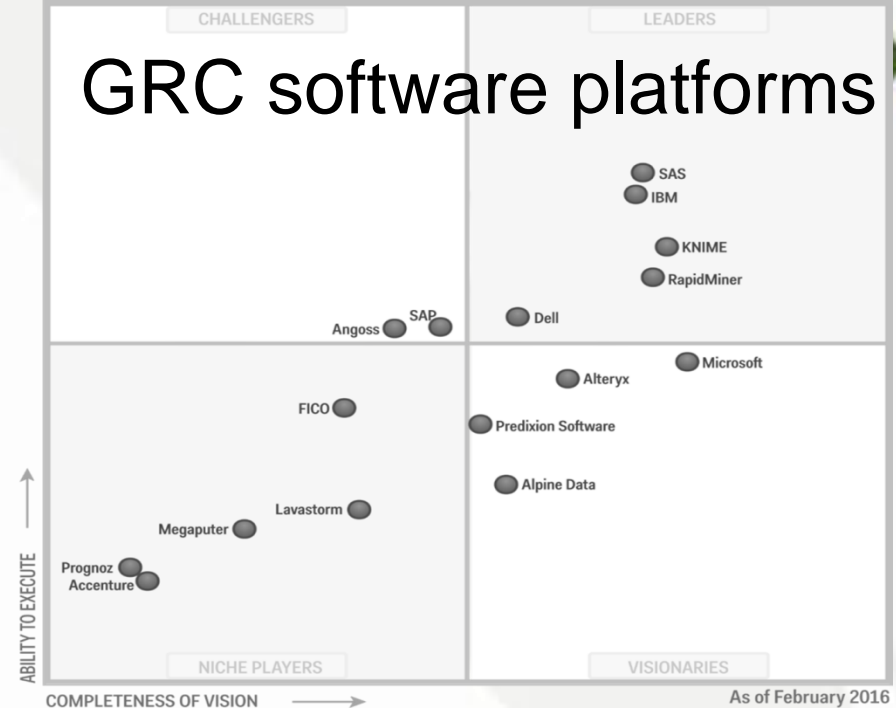
John Wheeler

Graphical representation of the results of market research BI&A, AA, GRC software platforms - Magic Quadrant and Chartis RiskTech Quadrant

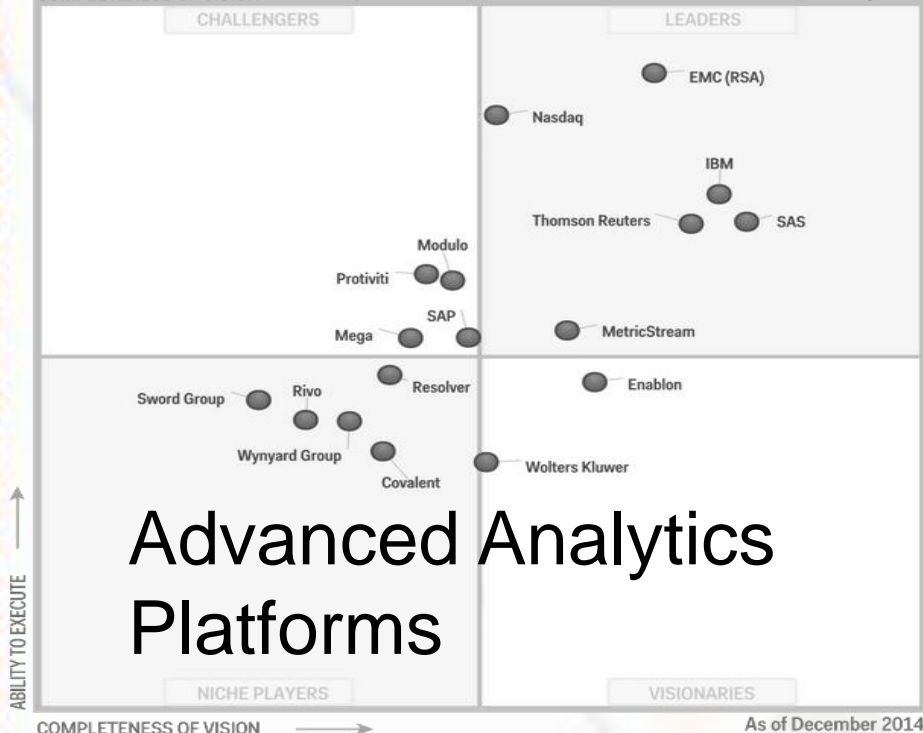
BI & Analytics Platforms



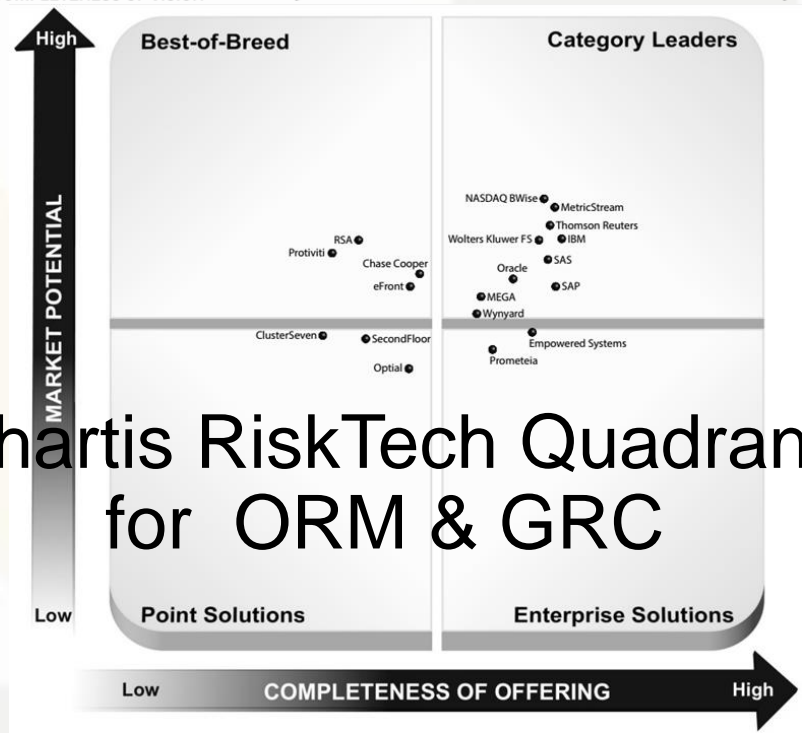
GRC software platforms



Advanced Analytics Platforms



Chartis RiskTech Quadrant for ORM & GRC



The research of changes of the company position over time

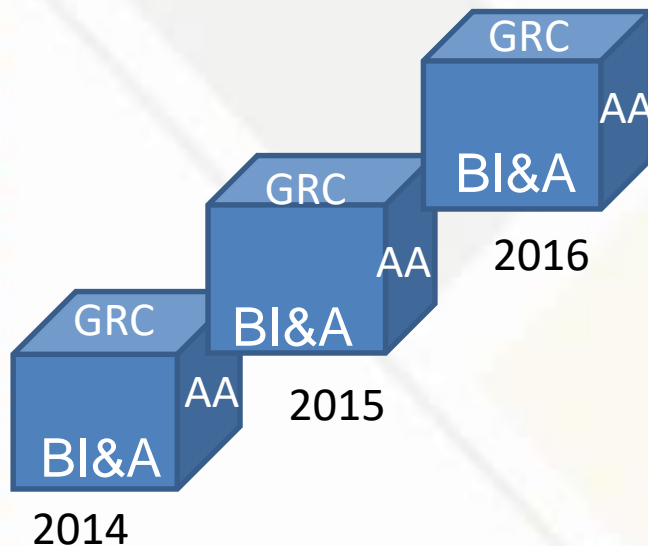


2016

2015

VS.

Business Intelligence and Analytics



2016

2015

VS.

Advanced Analytics Platforms

The analysis of the reports shows:




- none of the vendors did not have a complete or ideal solution to manage of economic security , which would be fitted to the banking sector
- the sum of the occupied seats in the markets BI&A Platforms and AA Platforms are leading such companies as SAS, SAP, Alterux.
- companies SAS and SAP also held a high place in the Magic Quadrant and Chartis RiskTech Quadrant for GRC technologies

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The management of economic security should be considered as a cybernetic system and to take into account the dual nature of risk: risk as the chance and risk as the hazard.

In the economic security management system proposed used technology of expert-analytical situational centers and GRC technology to support real-time decisions and automate continuous monitoring, auditing and risk management in the presence of limitations.

The proposed use of the results of market research it solutions from leading companies allow to select the necessary software tools for the system of economic security management.

Thank You for attention!



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