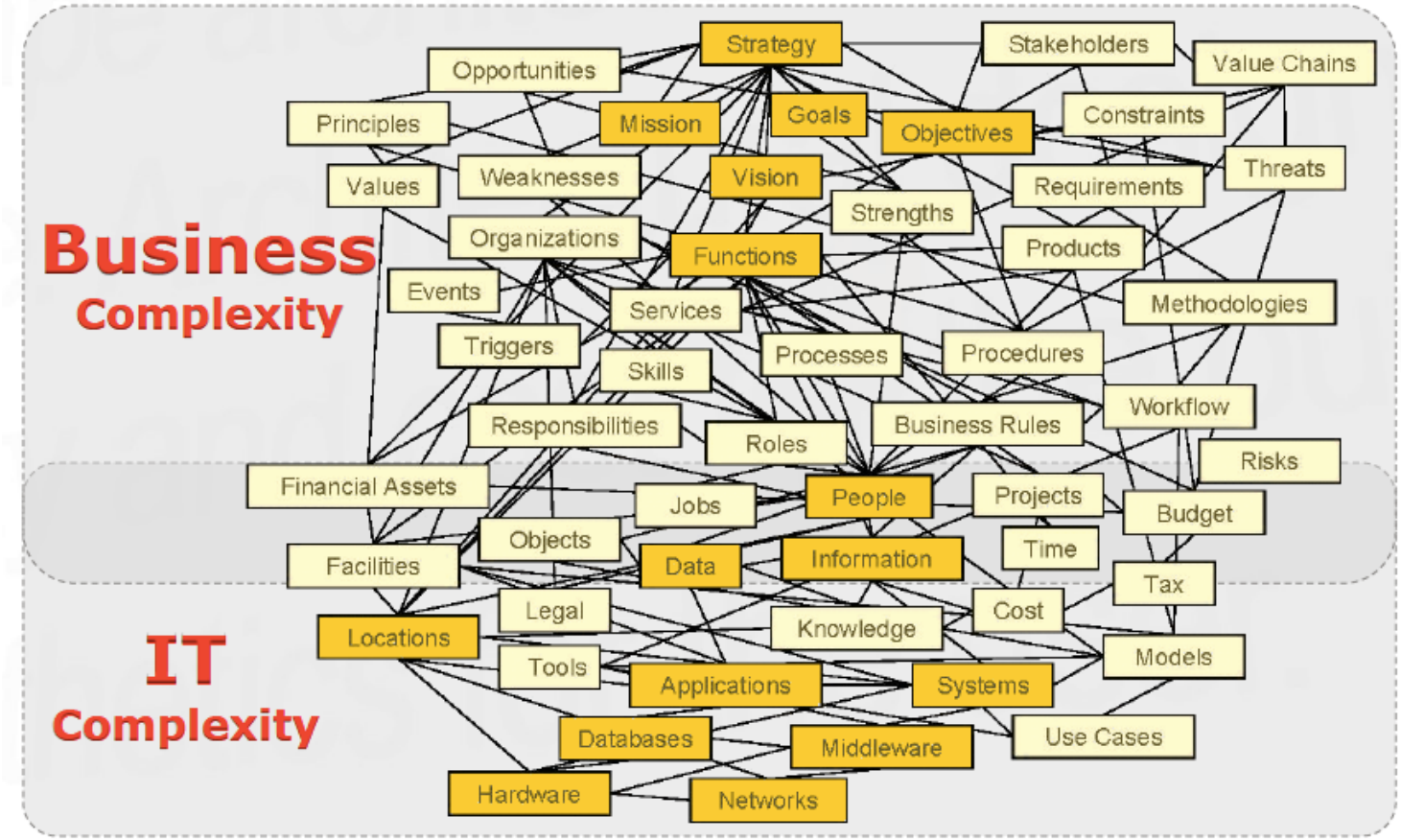
Современная ИТ архитектура – как правильно ее построить?

Алексей Широких

Сложность сегодняшних организаций усиливается сложностью, разнообразием и взаимосвязями корпоративных информационных систем



Принципы построения современной корпоративной ИТ архитектуры

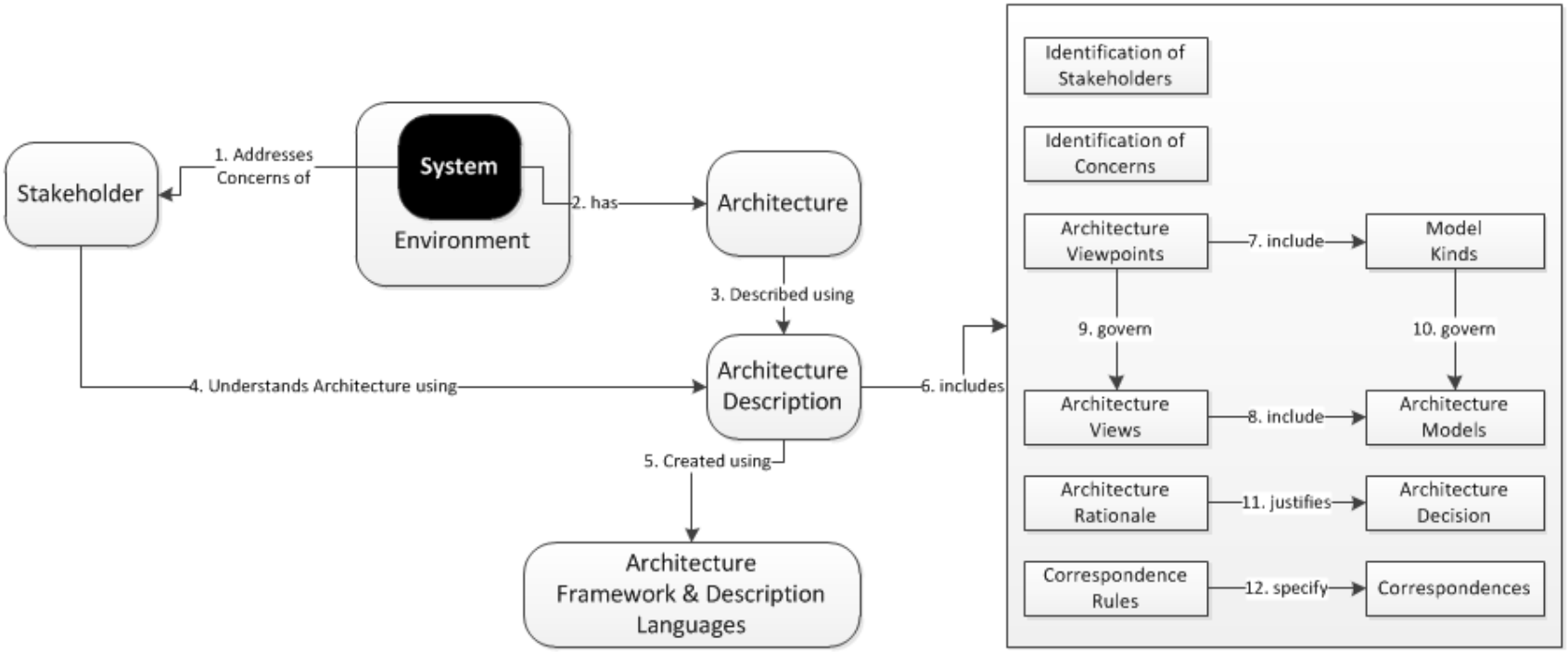
- Открытость
  - Использование стандартов – промышленных и технологических
    - FIX, SWIFT, ACCORD, ISO15704, ISO15288, ISO12207, ISO 17442
- Компонентность*
  - Использование архитектурных шаблонов реализации
  - Реализация архитектурного принципа - “Lose coupling and high cohesion”
  - Принцип скрытия реализации специфики и логики за интерфейсами
  - Группировка компонент в уровни – нижний уровень взаимодействует с верхним уровнем – Layered approach

* “Design Patterns: Elements of Reusable Object-Oriented Software” - The "Gang of Four” - Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides

Принципы построения современной корпоративной ИТ архитектуры

- Интегрируемость
  - Использование СОА парадигмы
  - Определять сервисы для бизнес функций в рамках сервисных каталогов
- Масштабируемость
  - Реализация промышленных технологий инфраструктурных решений для построения отказоустойчивых и катастрофоустойчивых решений
- Гибкость и адаптивность

ISO стандарт по построению корпоративной ИТ архитектуры - ISO 15704: Requirements for Enterprise Reference Architecture and Methodologies



Использование набора методологий и подходов к построению корпоративной архитектуры позволит построить современную архитектуру предприятия

Support of multiple approaches to EA by 2015

In the next three to five years, more organisations will aspire to support a **blended approach** to Enterprise Architecture (EA), according to Gartner, Inc.

Gartner analysts predict that 95 per cent of organisations will support **multiple approaches** to EA by 2015.

"Businesses are realising that there is **no one way** to support EA," said Julie Short, research director at Gartner.

Decisions may be heavily influenced by a **business context** and the organisation's **business landscape**, **people** and **politics**, **future state vision** and **experience**. Regardless of the approach, EA must facilitate change.

The key is to create, not the perfect or elegant architecture for the moment, but the **most adaptable** architecture for the future.

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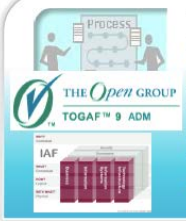
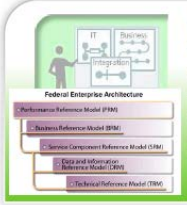
Source: http://www.gartner.com/it/page.jsp?id=1358913 April 2010

4 основных подхода для построения корпоративной архитектуры – от первоначальных подходов к построению корпоративной архитектуры к EA 2015



Traditional - In this approach, the EA team engages the organization to facilitate the **EA process**, focused on prescriptive content that serves to guide project decision making consistent with the "master plan" embodied in the architecture. This approach works well in organizations where decision making is largely centralized and are relatively stable in terms of the pace of change. It does not work as well in organizations where decision-making and authority are distributed and where the pace of business change is high.

IT Focus



Federated - A federated architecture is focused on defining **the core and common elements** between business areas/units. This approach is well suited to distributed organizations and this is an approach that is often post merger & acquisition or market consolidation to implement a more coordinated strategy. This approach is less effective in highly centralized organizations with a homogeneous business.

Middle-Out - Middle-out architecture is an approach to EA whereby architects focus on **managing the key dependencies** among those parts of the organization that have the biggest impact on the ability to change. A middle-out approach focuses on architecting interoperability by defining a small but rigidly enforced set of general, stable interface standards, while allowing complete autonomy of decision making for the specific technologies and products that are used within the solutions. This approach is highly suited for organizations and "business ecosystems," where the business units, partners, and suppliers are not under the direct control of a central EA team.

Business Focus

Managed Diversity - Managed-diversity Enterprise Architecture is focused on **defining choices or options**.
This EA approach is focused on balancing the **need for a set of standards** with the **need for a diversity of solutions** to increase innovation, business growth and competitive advantage in an **agile** way.

Подход STREAM к построению корпоративной архитектуры ориентирован на баланс необходимости набора стандартов с необходимостью разнообразия решений для повышения инноваций, роста бизнеса и конкурентных преимуществ современного предприятия

1. The **Results** must be **Traceable** ... *in order to add value*

   Start at the business site and make all choices and decisions traceable to the sources.

2. The **Process** must be **Pragmatic** ... *in order to add value*

   Focus only on those elements that directly contribute to the goals & objectives. Make a difference between EA thinking and EA doing.

3. The **Trajectory** must be **Rapid** ... *in order to add value*

   Most STREAM EA transformation / rationalisation trajectories are delivering their results within a 4 to 5 months timeframe.

4. The **Process** must be **Productive** ... *in order to add value*

   STREAM EA transformation / rationalisation trajectories are delivering predefined type of results, related to the goals & objectives.

5. The **Results** must be **Relevant** ... *in order to add value*

   STREAM EA transformation / rationalisation / legacy trajectories are always starting at the business site and are delivering significant added value due to the focus to contribute to organisations strategic objectives & direction

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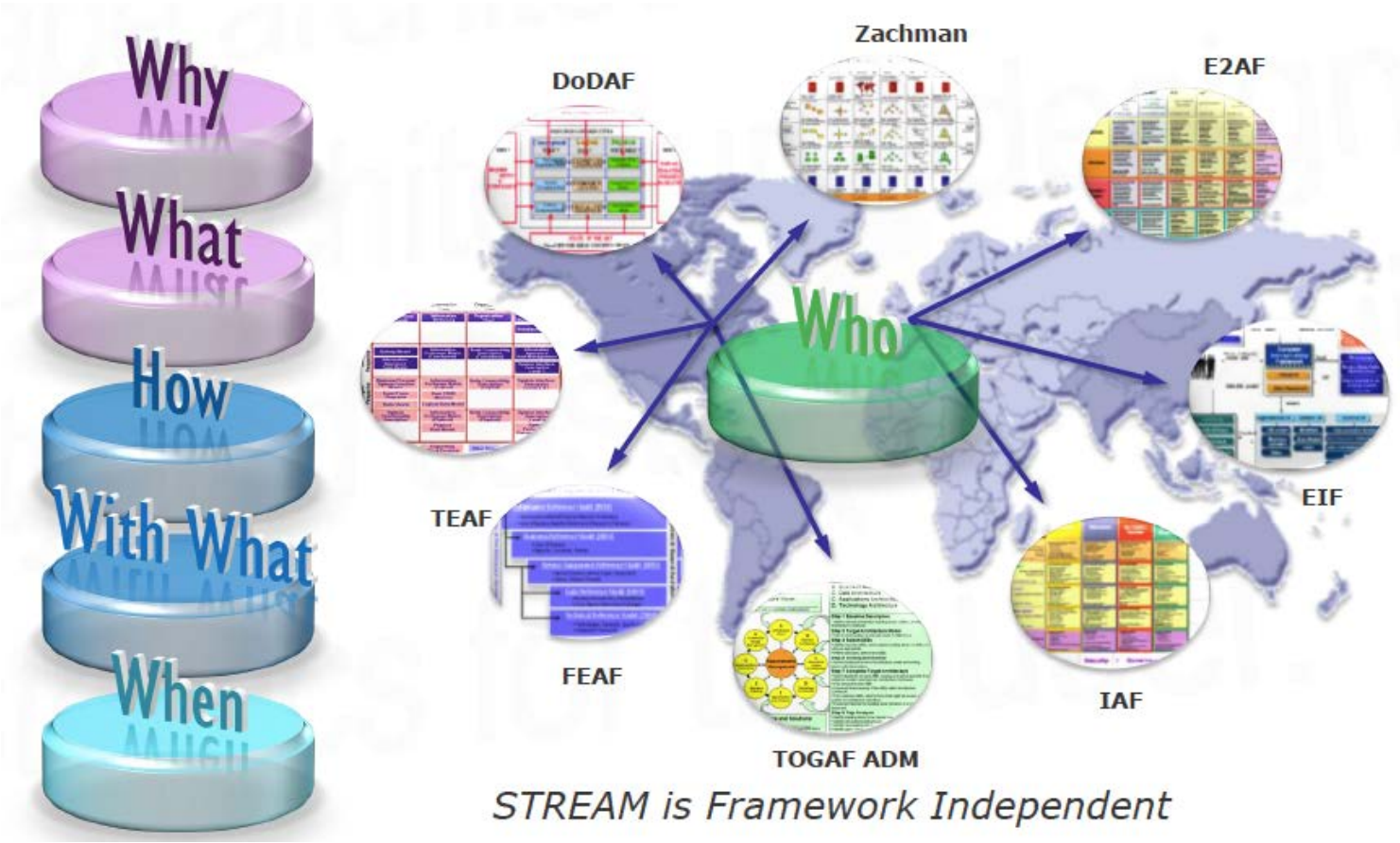
Подход STREAM является независимым от используемых архитектурных подходов и стандартов



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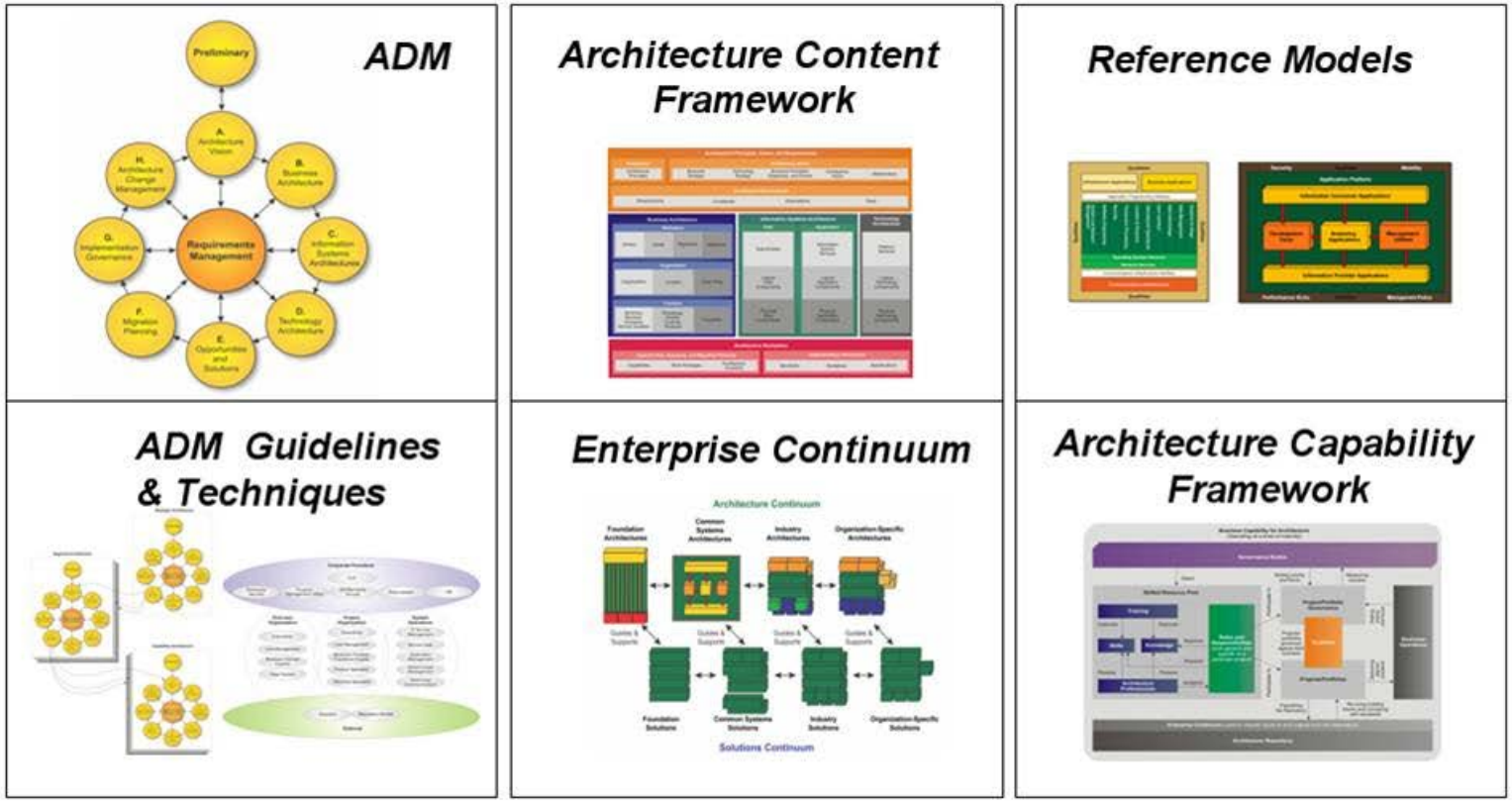
Структура Захмана* для построения корпоративной архитектуры предприятия

	WHAT	HOW	WHERE	WHO	WHEN	WHY
	DATA	FUNCTION	NETWORK	PEOPLE	TIME	MOTIVATION
SCOPE {contextual} Planner	List of things important to the business Entity = Class of business things	List of processes the business performs Process = Class of business process	List of locations in which the business operates Node = Major business locations	List of organisations important to the business People = Major business unit	List of event cycles signifcant to the business Time = Major Business Event Cycle	List of business goals/ strategies End/Means = Major Business Goal/Strategy
BUSINESS MODEL {Conceptual} Owner	e.g., Semantic Model Entity = Business Entity Relationship = Business	e.g.,Business Process Model Process = Business I/O = Business Resource	e.g.,Business Logistics System Node = Business Location Link = Business Linkage	e.g.,Workflow Model People = Organisation unit Work = Work Product	e.g.,Master Schedule Time = Business Event Cycle = Business Cycle	Business Plan End = Business Objective Means = Business Strategy
SYSTEM MODEL {Logical} Designer	e.g., Logical Data Model Entity = Data Entity Relationship = Data Relationship	e.g., Application Architecture Process = Application Function I/O = User Views	e.g., Distributed System Model Node = I/S Function Relationship = Line Characteristics	e.g., Human Interface Architecture People = Role Work = Deliverable	e.g., Processing Structure Time = System Event Cycle = Processing Cycle	e.g., Business Rule Model End = Structural Assertion Means = Action Assertion
TECHNOLOGY MODEL {Physical} Builder	e.g., Physical Data Model Entity = Segment/Table Relationship = Pointer/key	e.g., System Design Process = Computer Function I/O = Data Elements/sets	e.g., Technology Architecture Node = H/w /System s/w Relationship = Line Specifications	e.g., Presentation Architecture People = User Work = Screen Formats	e.g., Control Structure Time = Execute Cycle = Component Cycle	e.g., Rule Design End = Condition Means = Action
DETAILED REPRESENTATIONS {Out-of-context} Subcontractor	e.g., Data Definition Entity = Field Relationship = Address	e.g., Program Process = Language Statement I/O = Control Block	e.g., Network Architecture Node = Address Link = Protocol	e.g., Security Architecture People = Identity Work = Job	e.g., Timing Definition Time = Interrupt Cycle = Machine Cycle	e.g., Rule Specification End = Sub-condition Means = step
FUNCTIONING ENTERPRISE	e.g DATA	e.g FUNCTION	e.g NETWORK	e.g ORGANISATION	e.g SCHEDULE	e.g STATEGY

* J.A. Zachman "A framework for information systems architecture". IBM SYSTEMS JOURNAL, VOL 26. NO 3,. 1987

TOGAF* является основой для построения корпоративной архитектуры, которая обеспечивает комплексный подход для проектирования, планирования, внедрения и управления архитектурой предприятия



* The Open Group Architecture Framework

Skoltech

Skolkovo Institute of Science and Technology

СКОЛКОВСКИЙ ИНСТИТУТ НАУКИ И ТЕХНОЛОГИЙ (СКОЛТЕХ)

Ускоритель Инноваций

МИССИЯ – УСКОРИТЬ ИННОВАЦИИ

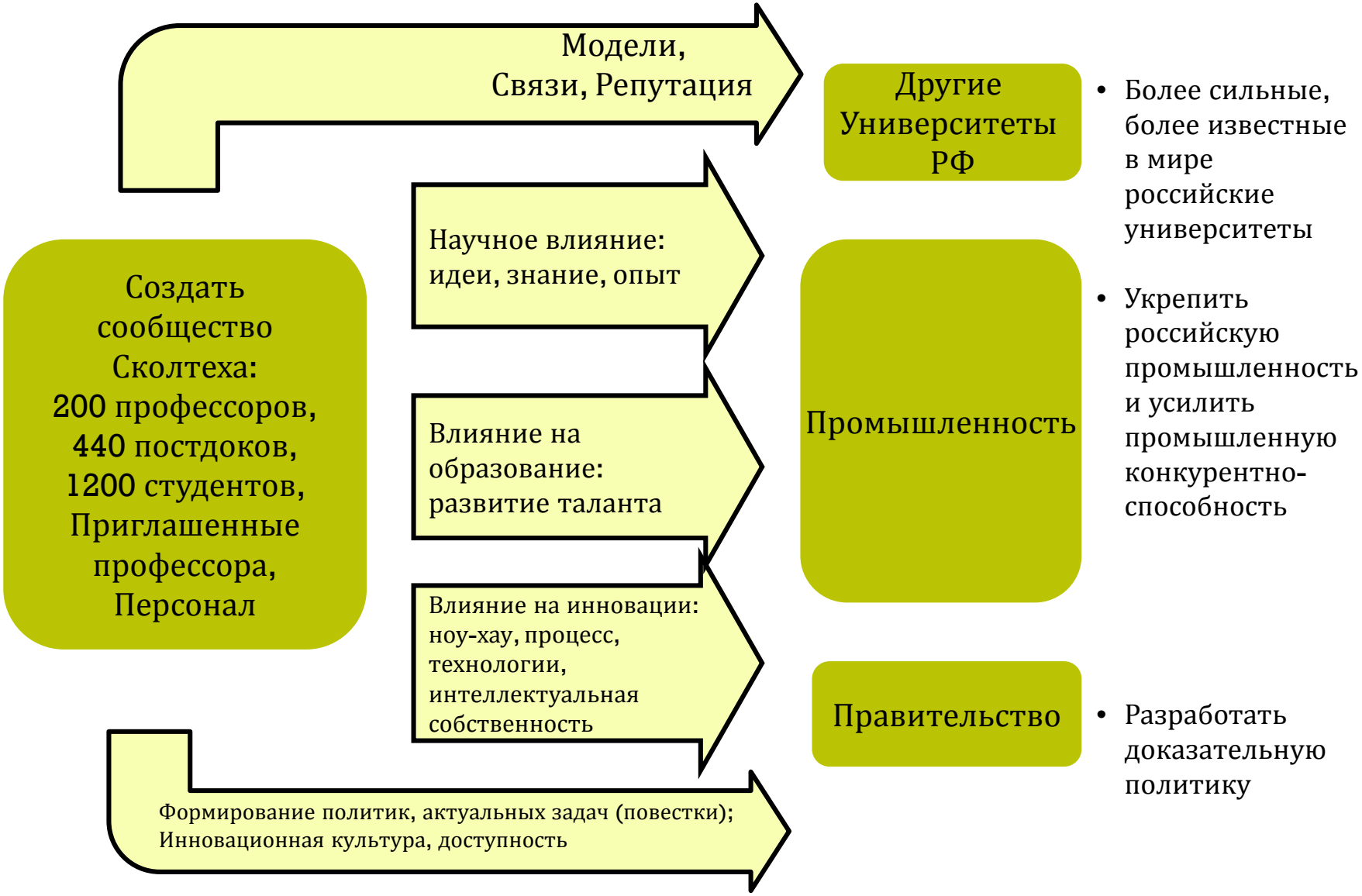
- Развитие образовательного, научного и экономического потенциала в Российской Федерации и за рубежом

- Реализация исследовательских и инновационных программ для решения ключевых проблем в научной, технологической, инженерной и инновационной сферах; подготовка студентов – лидеров в своем направлении, которые будут связующим звеном между наукой и инновациями

- Использование совокупности уникальных российских и зарубежных талантов, ключевых партнеров и первоклассной инфраструктуры при создании университета как неотъемлемой части инновационной экосистемы Сколково

Сколтех – новая модель образовательного института

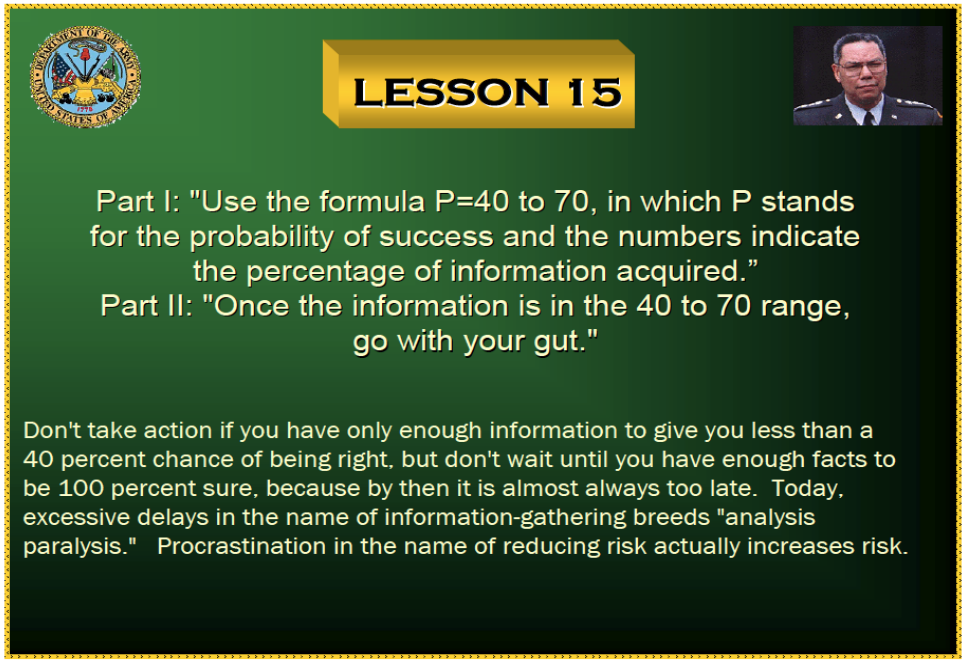
ЦЕЛЬ: СТАТЬ САМЫМ ЭКОНОМИЧЕСКИ ВЛИЯТЕЛЬНЫМ УНИВЕРСИТЕТОМ



EA Governance - Процесс управления корпоративной архитектурой необходим для идентификации, управления, аудита и использования информации, связанной с управлением и использованием корпоративной архитектуры

Выводы

Winchester Mystery House
Near San Jose Before the Earthquake


LESSON 15
Part I: "Use the formula P=40 to 70, in which P stands for the probability of success and the numbers indicate the percentage of information acquired."
Part II: "Once the information is in the 40 to 70 range, go with your gut."
Don't take action if you have only enough information to give you less than a 40 percent chance of being right, but don't wait until you have enough facts to be 100 percent sure, because by then it is almost always too late. Today, excessive delays in the name of information-gathering breeds "analysis paralysis." Procrastination in the name of reducing risk actually increases risk.