Process Patterns
For Software Outsourcing

**How to customize MSF, RUP, XR, etc.
for distributed teams ?**

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Vladimir Pavlov strategic innovations

Agenda

- Introduction
- Organizational Patterns
- Process Patterns

About The Authors

- **Vladimir L Pavlov (Microsoft, Russia)**
  - D&PE Lead
  - Microsoft Endorsed MSF Practitioner, MCSD for .NET, MCSD, MCDBA, (ex-)MCT, CompTIA Certified IT Project+
  - Senior Member of IEEE, member of PMI, ACM and IEEE Computer Society
- **Andrey A Terekhov (Microsoft, Russia)**
  - Academic Programs Manager
  - PhD in Computer Science
  - Microsoft Endorsed MSF Practitioner, MCSD, (ex-)MCT, IEEE Certified Software Development Professional
  - Member of ACM, IEEE and IEEE Computer Society
- **This presentation is mostly based on experience gained by authors prior to joining Microsoft, when authors worked as chief executives of several large Russian/Ukrainian software outsourcing companies**
  - We had a chance to look at outsourcing projects from both sides of the ocean
- This presentation does not represent an official Microsoft point of view on the discussed topic

What Is a “Process Pattern”?

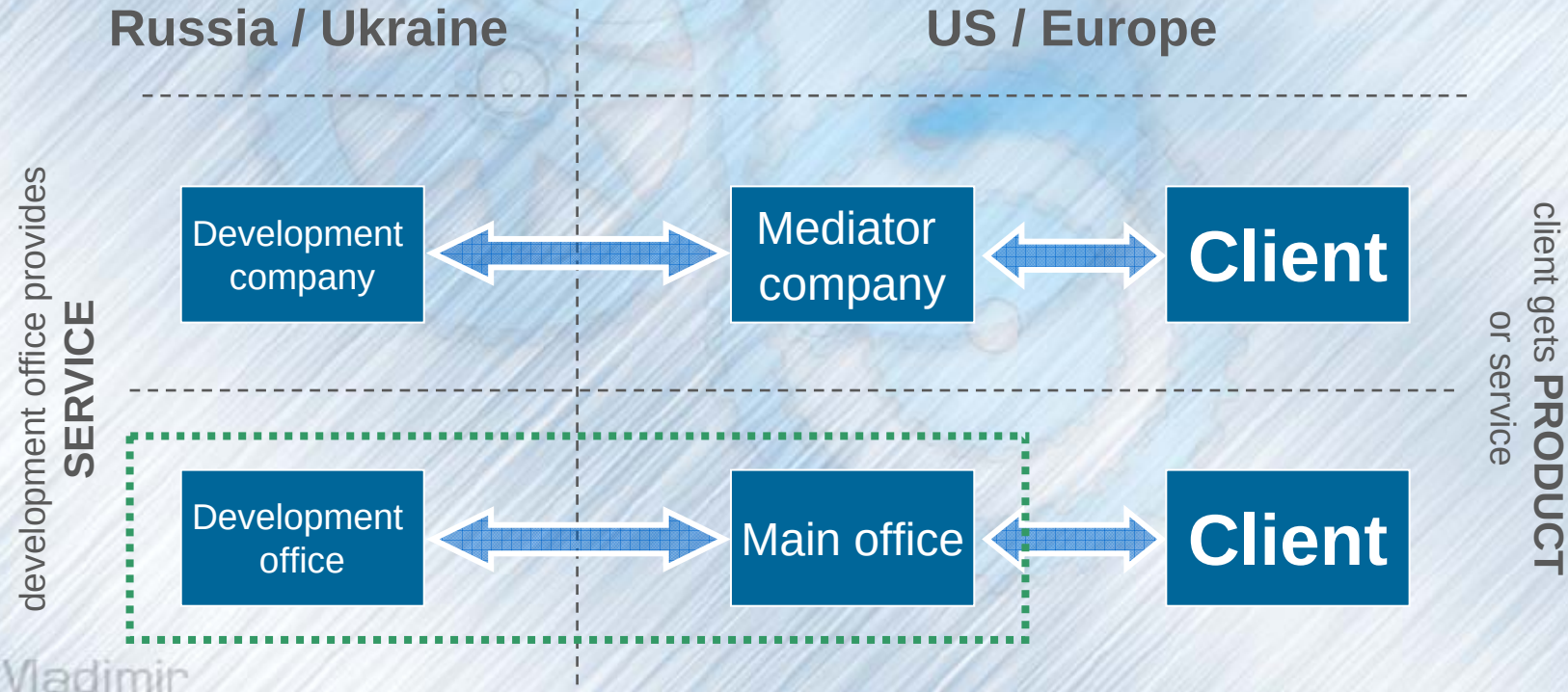
- **A Pattern is a description of a general solution to a common problem or issue from which a detailed solution to a specific problem can be determined**
- **A Process Pattern is a specific Pattern created for, employed within or defined in terms of Software Process Engineering domain**
- **Software Process Engineering is a knowledge area concerned with the definition, implementation, assessment, measurement, management, change, and improvement of the software engineering process itself**

In This Presentation

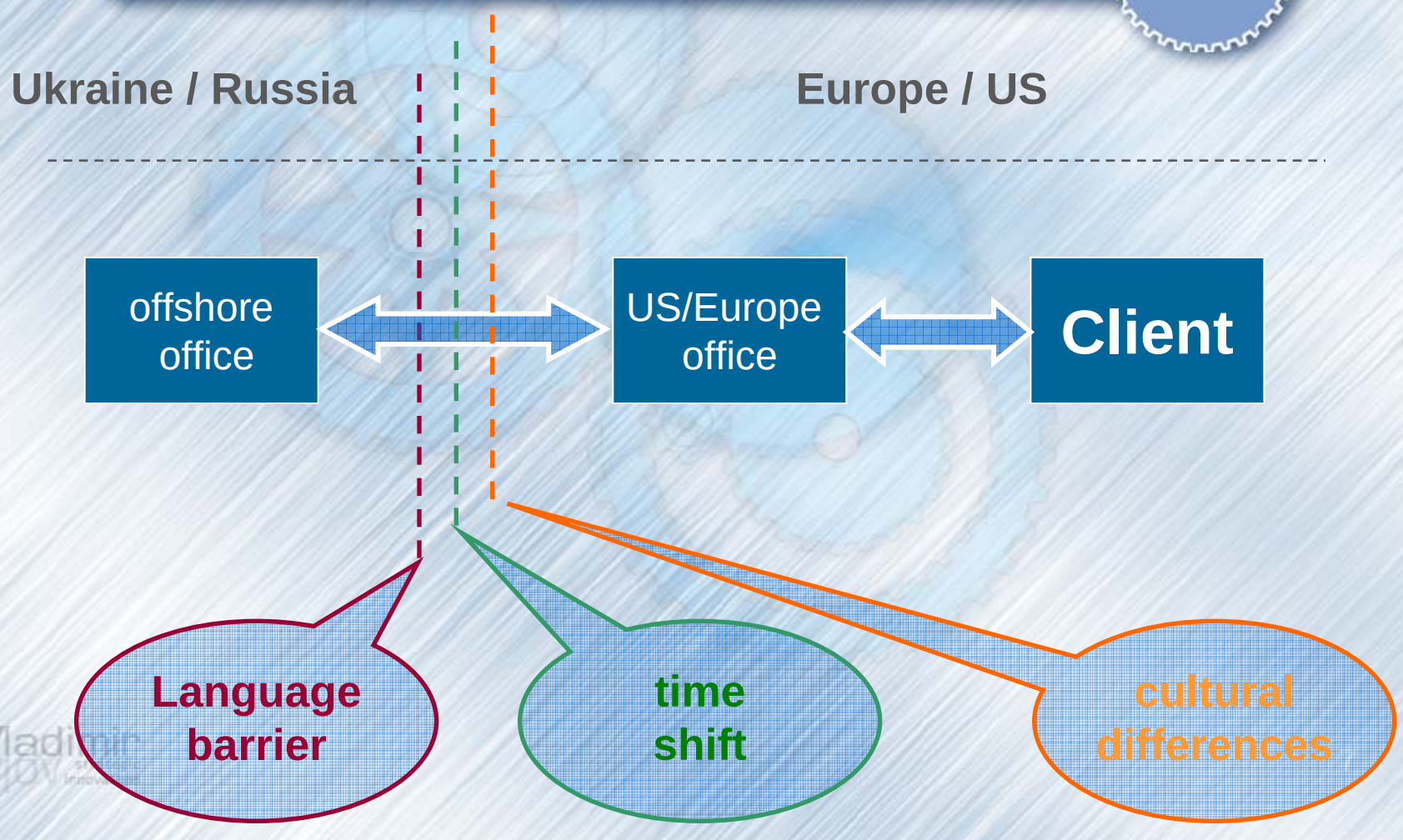
- We will use MSF in our examples. To understand these examples one does not need to know MSF. However some experience in one of the modern IT management methodologies/frameworks (RUP, MSF, CDM etc.) is required
- The Microsoft Solutions Framework (MSF) is a collection of Microsoft's proven practices on managing successful IT projects
- Similar to Windows or any other product, MSF evolves and matures as new versions are released. Initially Microsoft made MSF available in 1994. The latest version of MSF is 3.0
- The new version of the MSF (MSF 4.0) will become available in a few months

Software Outsourcing: Typical Models

There are different approaches to adapting modern software development management methodologies and frameworks to offshore outsourcing projects

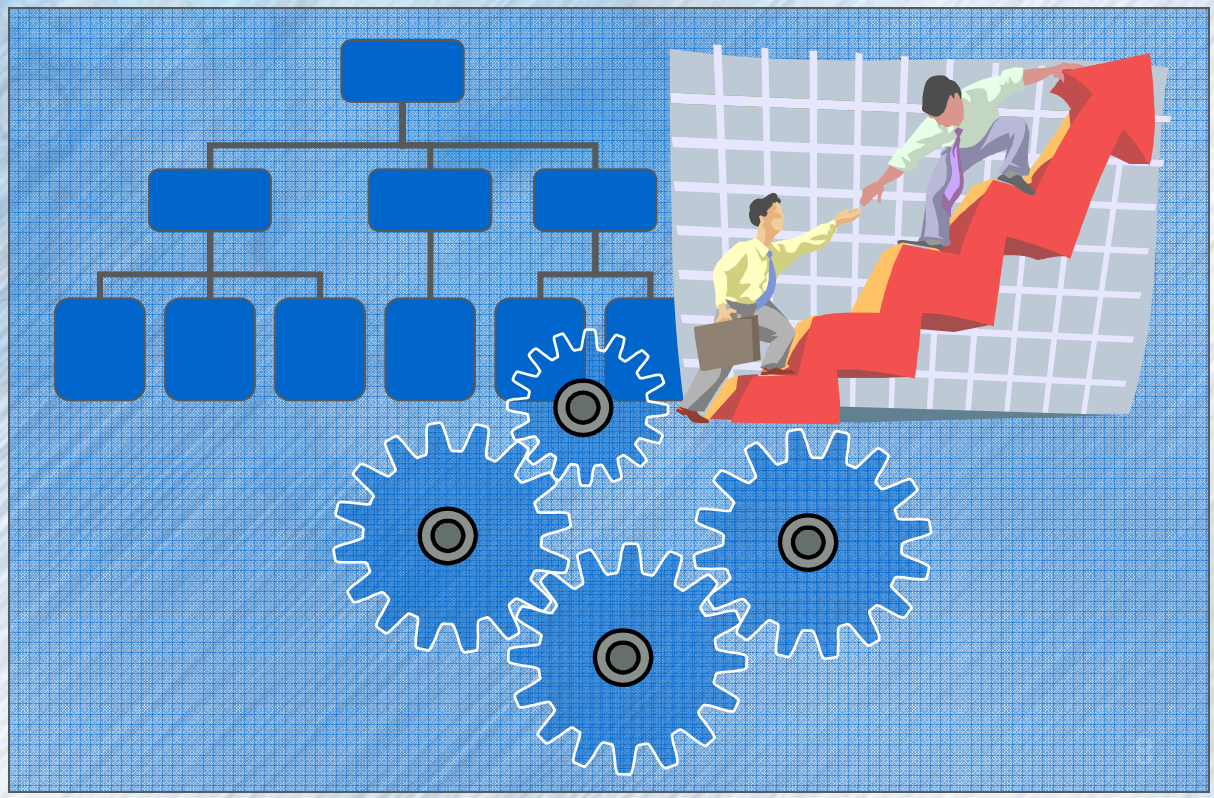


How Many Borders Do We Have?



Single-Site Development

- a strategy
- an organizational structure
- business processes



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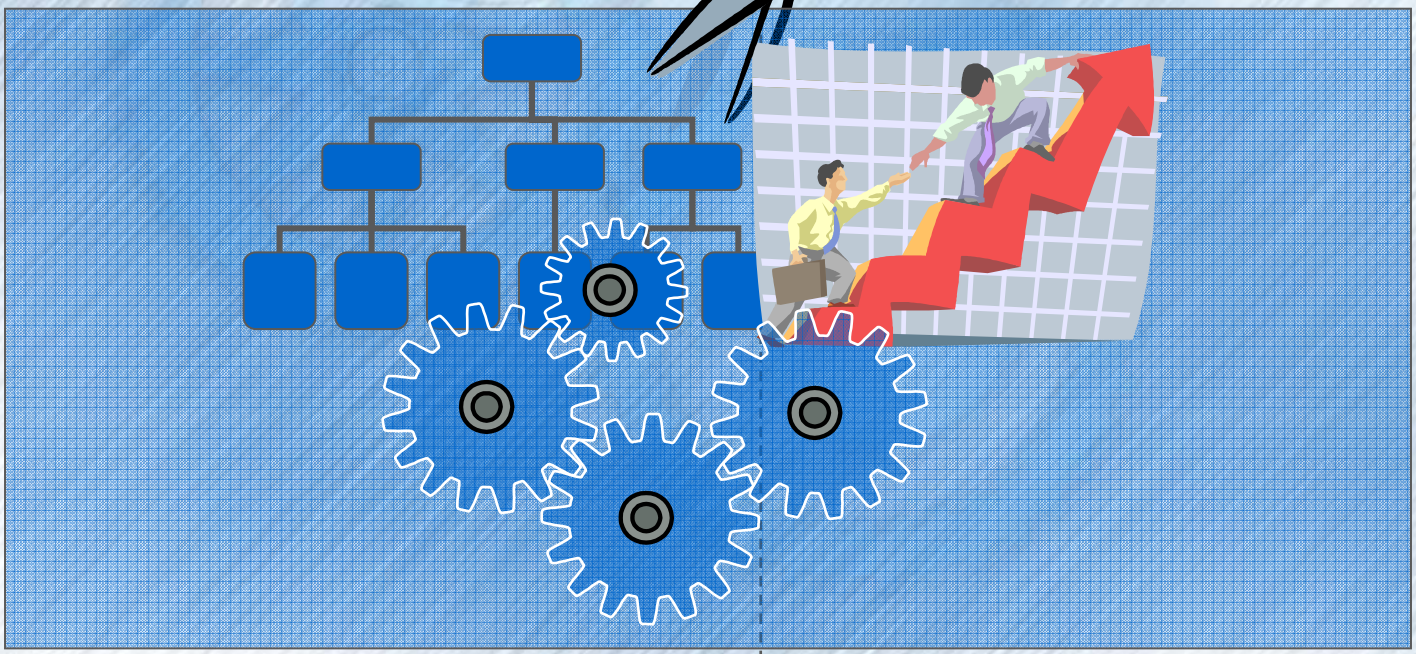
Distributed Development

Russia / Ukraine

US / Europe



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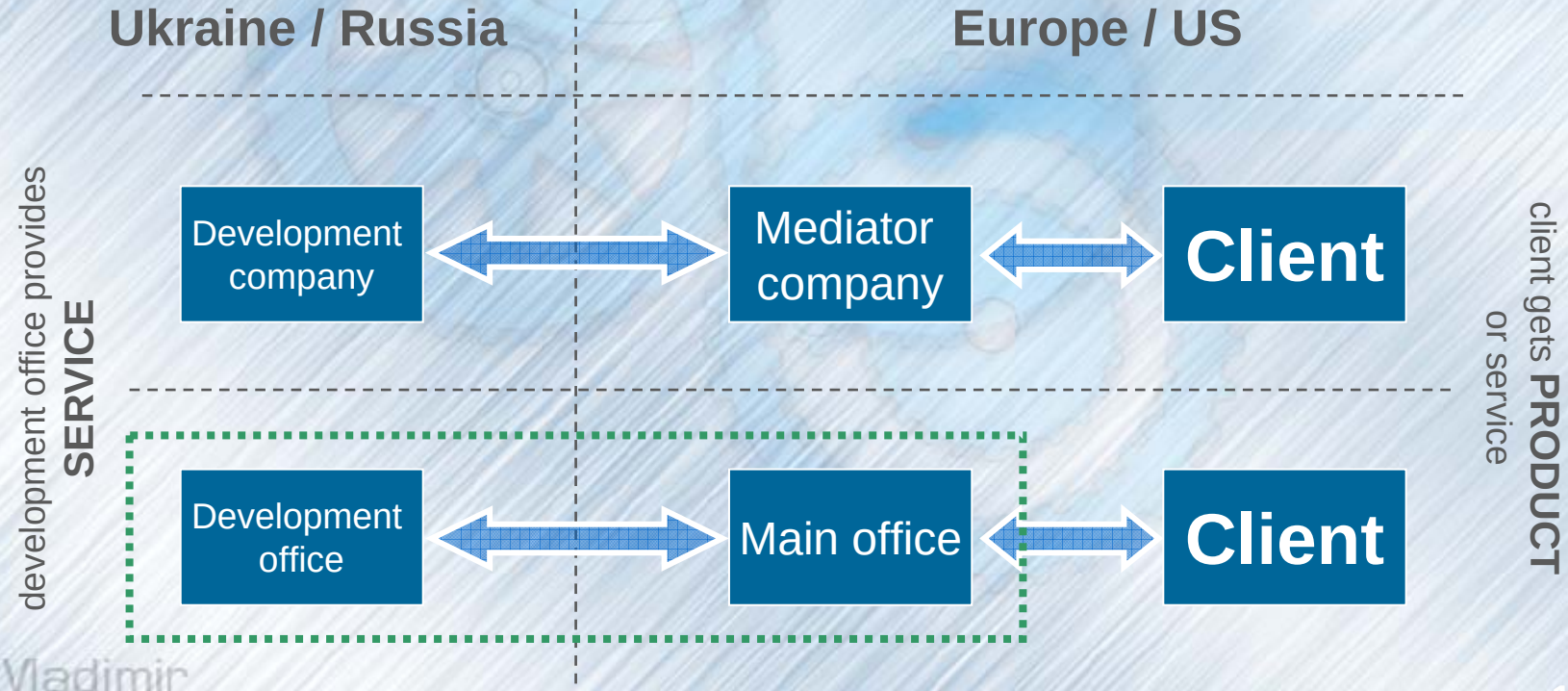
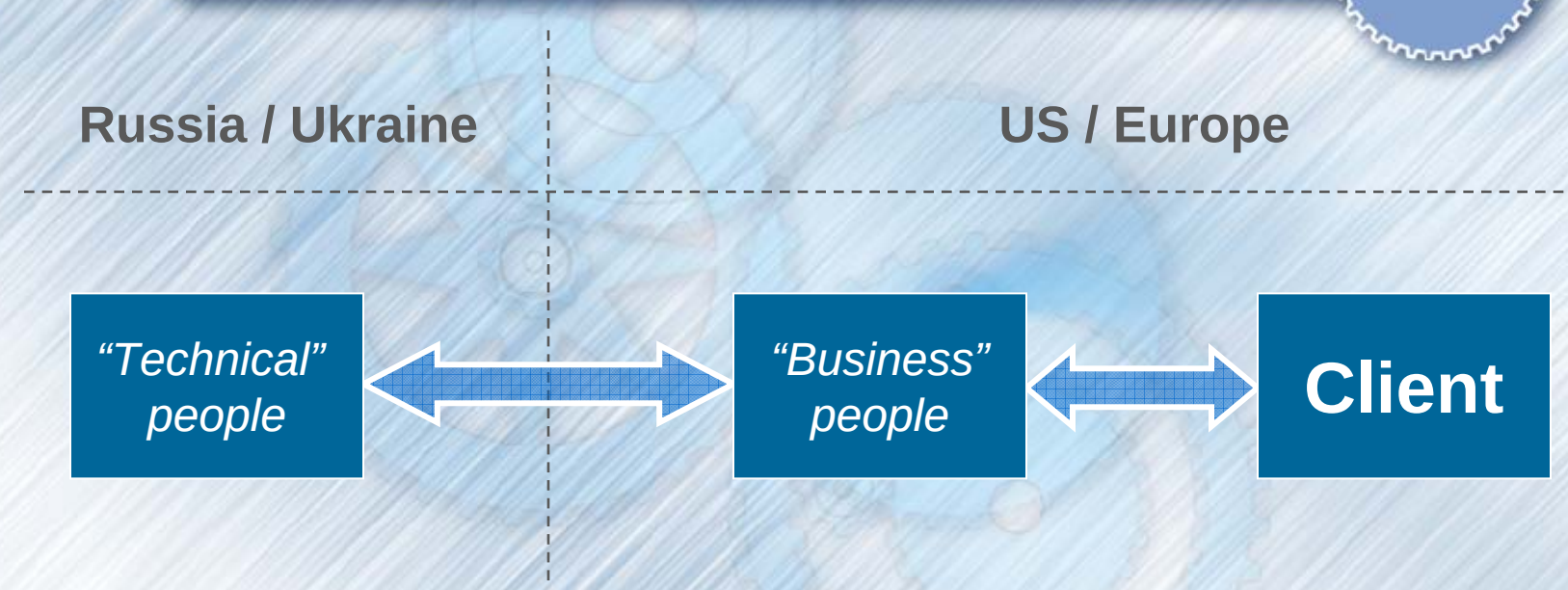
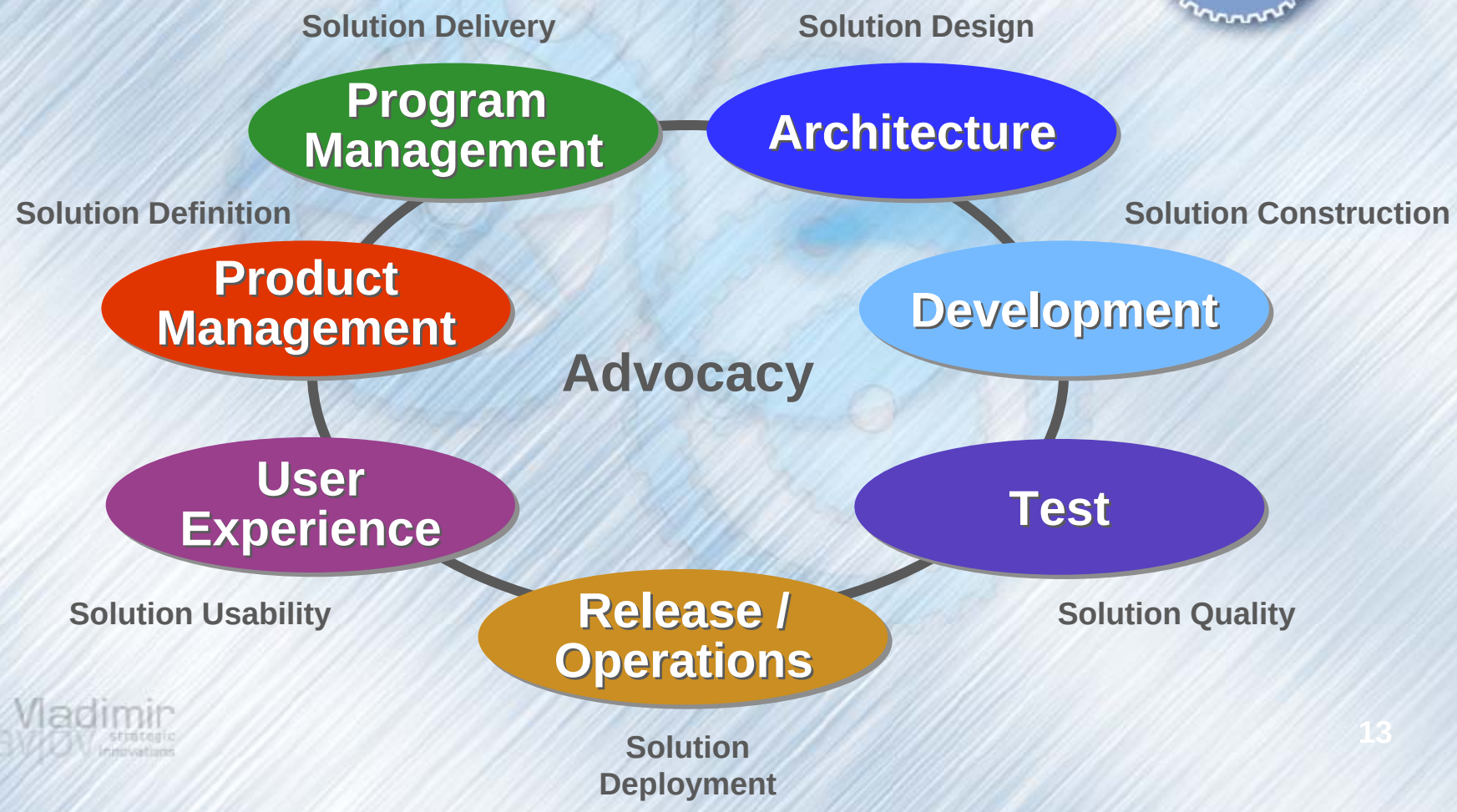


Software Outsourcing: the "Broken Phone" Game

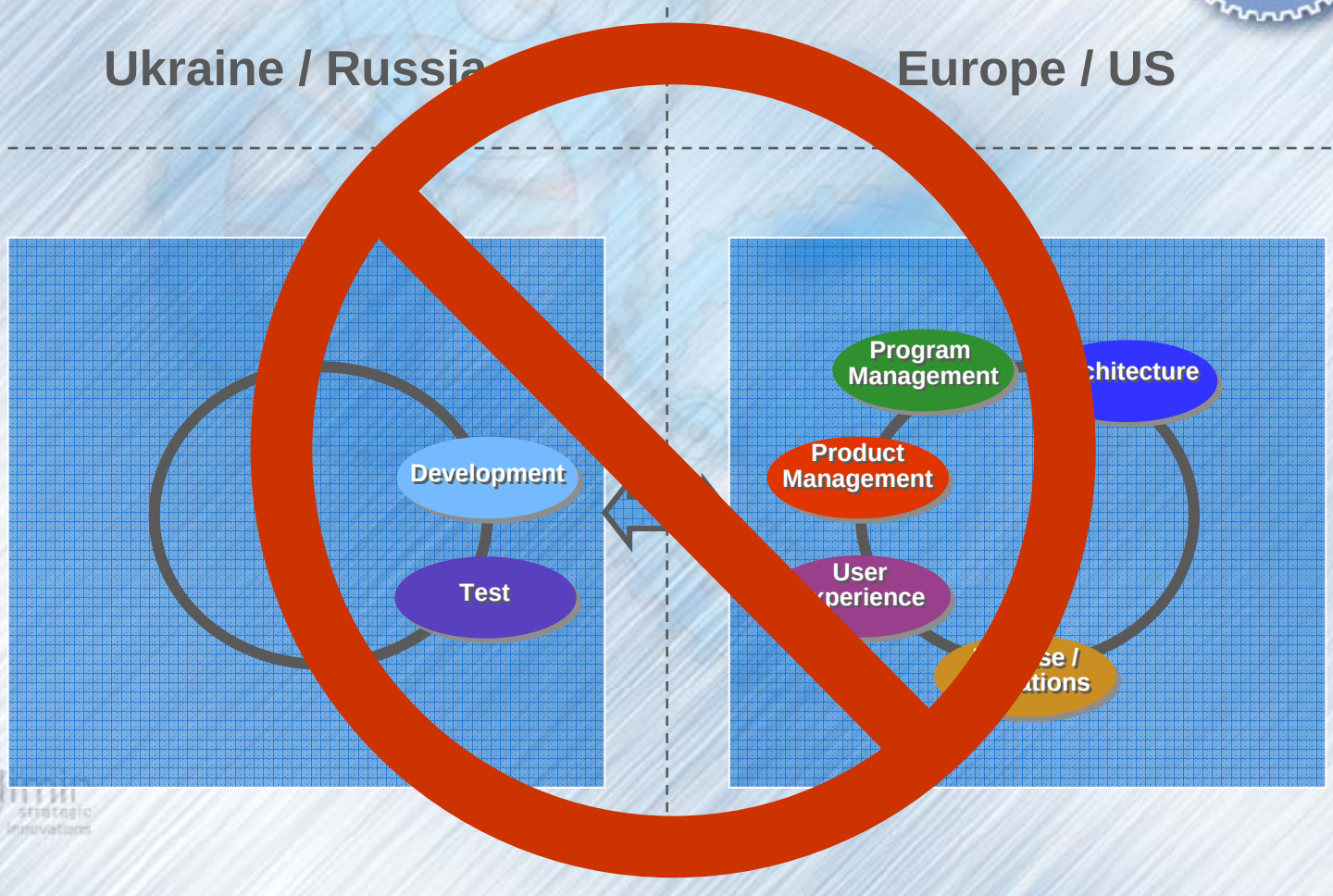


- When a technical person speaks to a business person, some information is often lost or misinterpreted
- When two specialists from different countries speak over the ocean, some information is often lost or misinterpreted
- So, imagine what happens when a technical person speaks to a business person over the ocean…

MSF Team Model

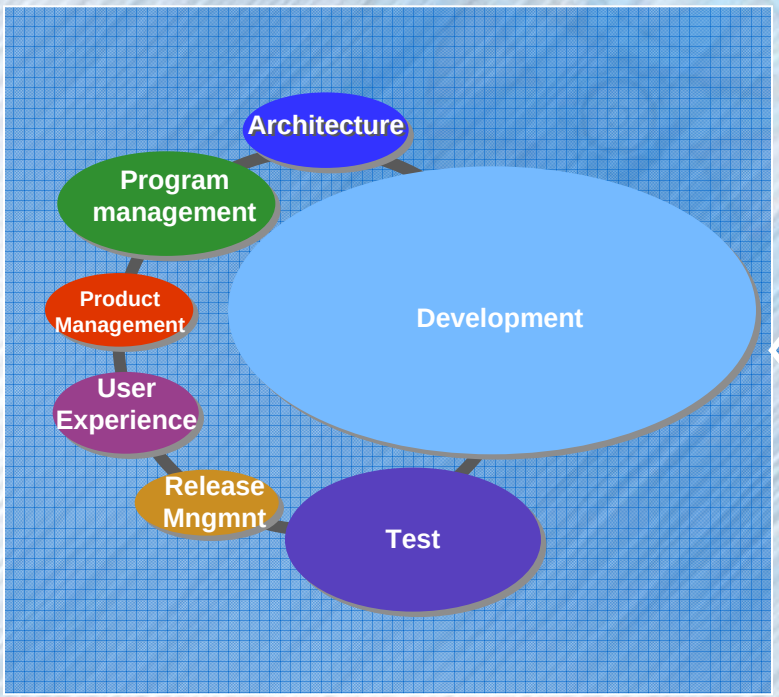


MSF Team Model for Software Outsourcing Projects

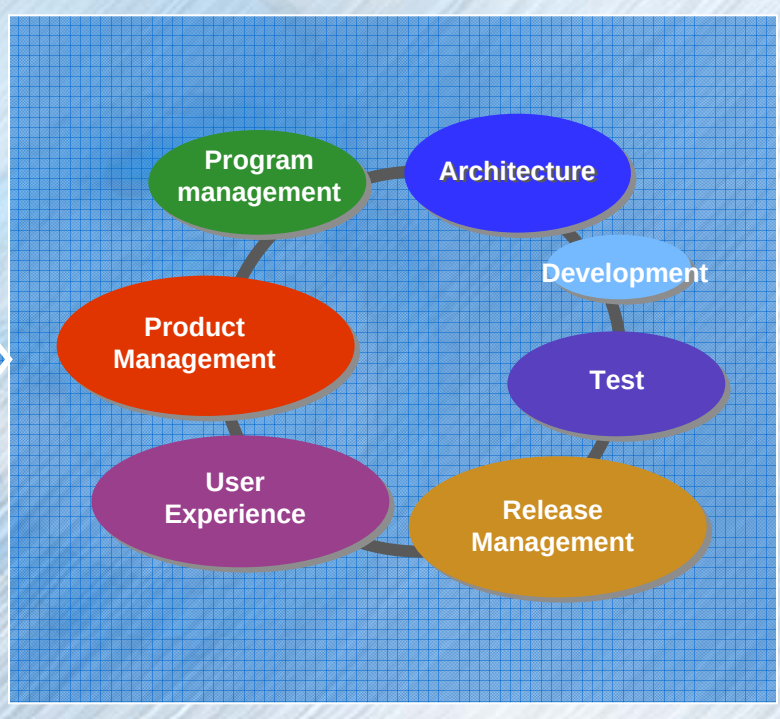


Our Solution: In Software Outsourcing Projects All Functional Areas Should be Covered on Both Sides

Russia / Ukraine



US / Europe



MSF Team as a Matrix Organization

- An MSF team is structured as a team of peers. In this model, the Program Management role takes a highly facilitative approach to managing the functions within its responsibilities. As such, the MSF team would organizationally be structured similarly to what is referred to in the PMBOK as a Matrix Organization. These are cross-functional teams that combine the skills and foci from difference areas of the organization into a single team assembled for the project

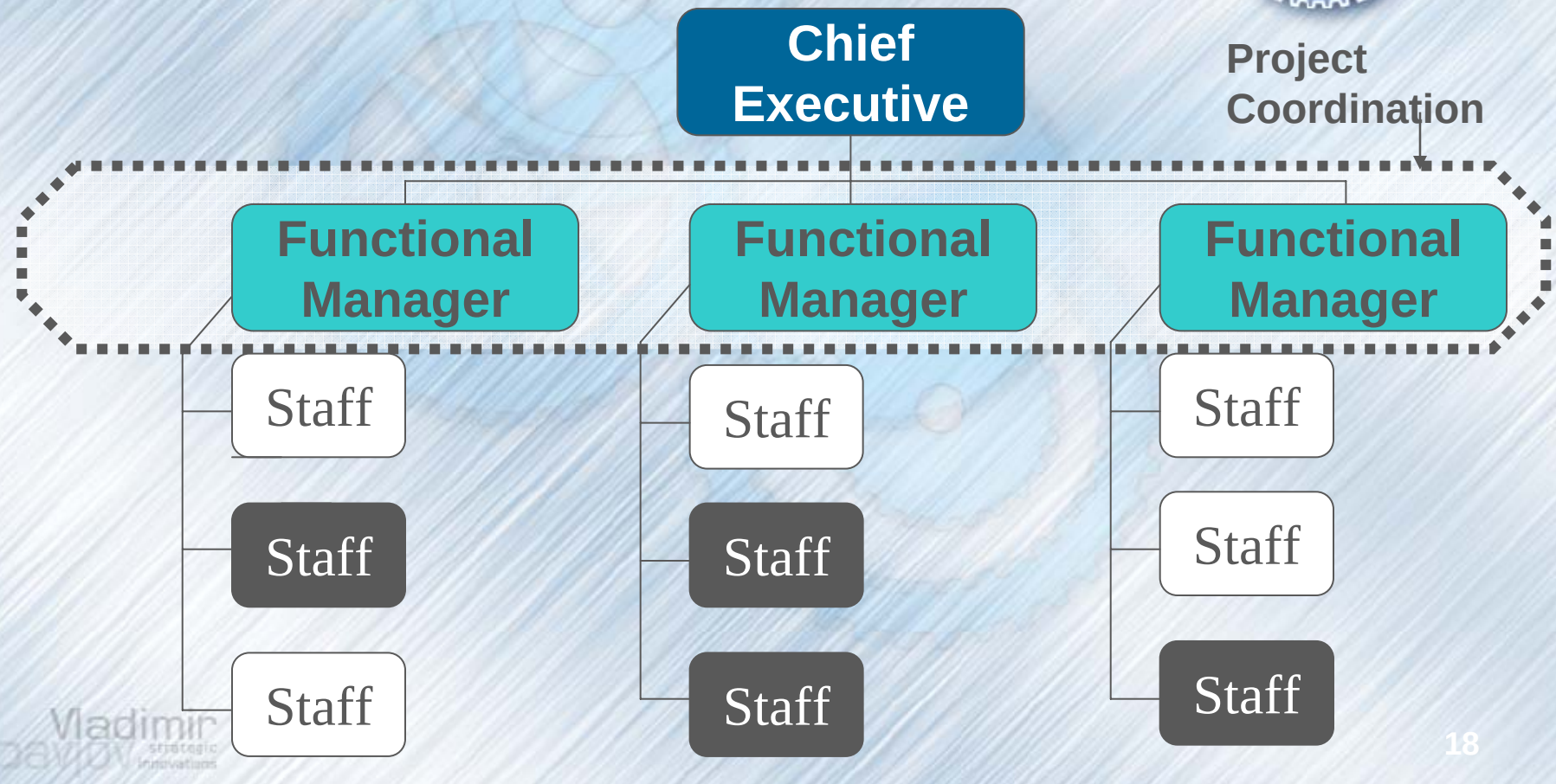
- Additionally, the MSF team, as a team of peers, would most closely resemble a Weak Matrix Organization, in its purest form, as described in the PMBOK. Here, "weak" refers to the level of decision-making clout of the project manager and not the quality or capabilities of the team

Matrix Organizations

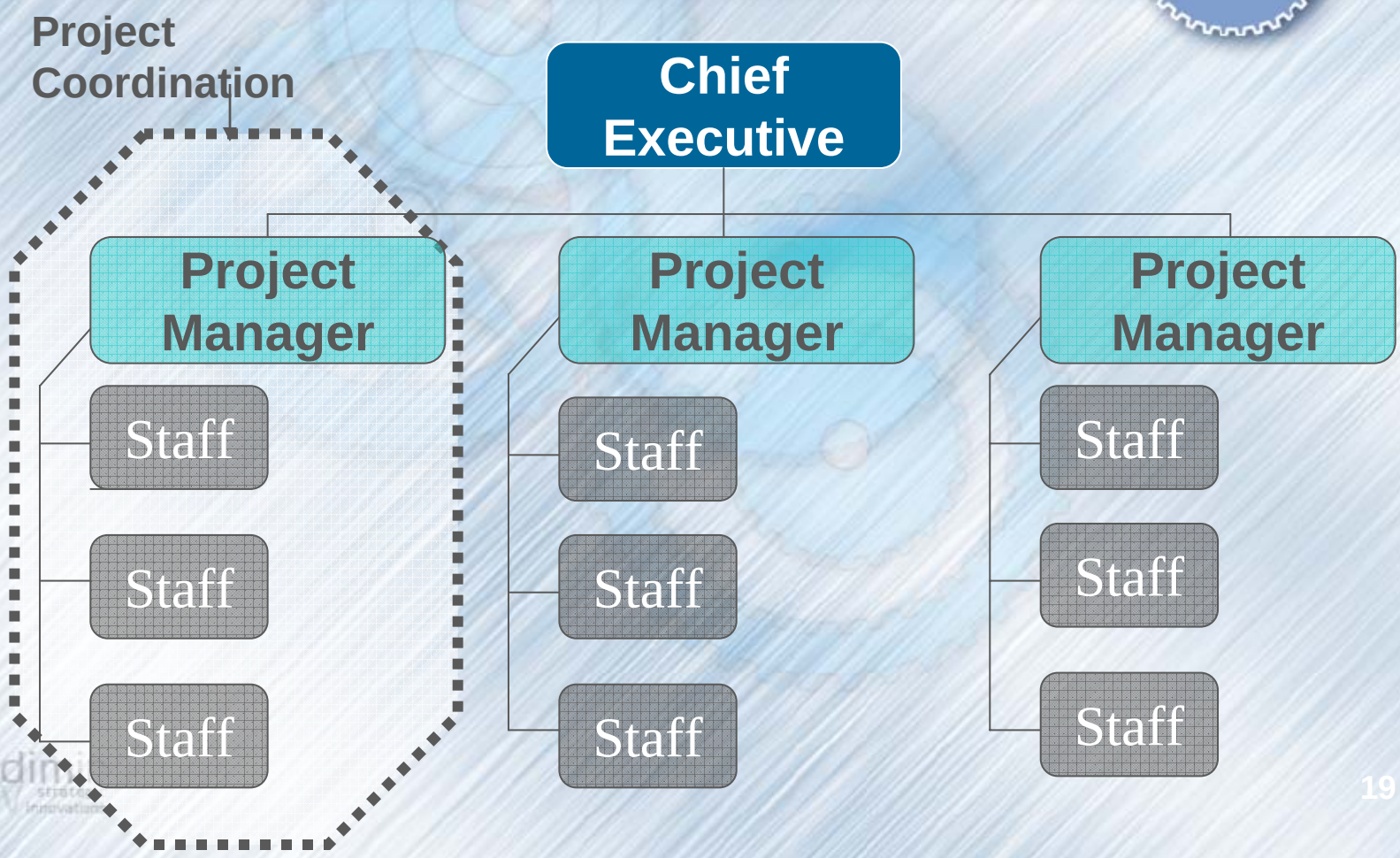
Organizational Type / Project Characteristics	Functional	Matrix			Projectized
		Weak Matrix	Balanced Matrix	Strong Matrix	
Project Manager's Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
% of Organization's Personnel Assigned Full-time	Virtually None	0-25%	15-60%	50-95%	85-100%
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Common Titles for Authority PM's Role	Project Coordinator/ Project Leader	Project Coordinator/ Project Leader	Project Manager/ Project Officer	Project Manager/ Program Manager	Project Manager/ Program Manager
Project Manager's Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

PMI PMBOK

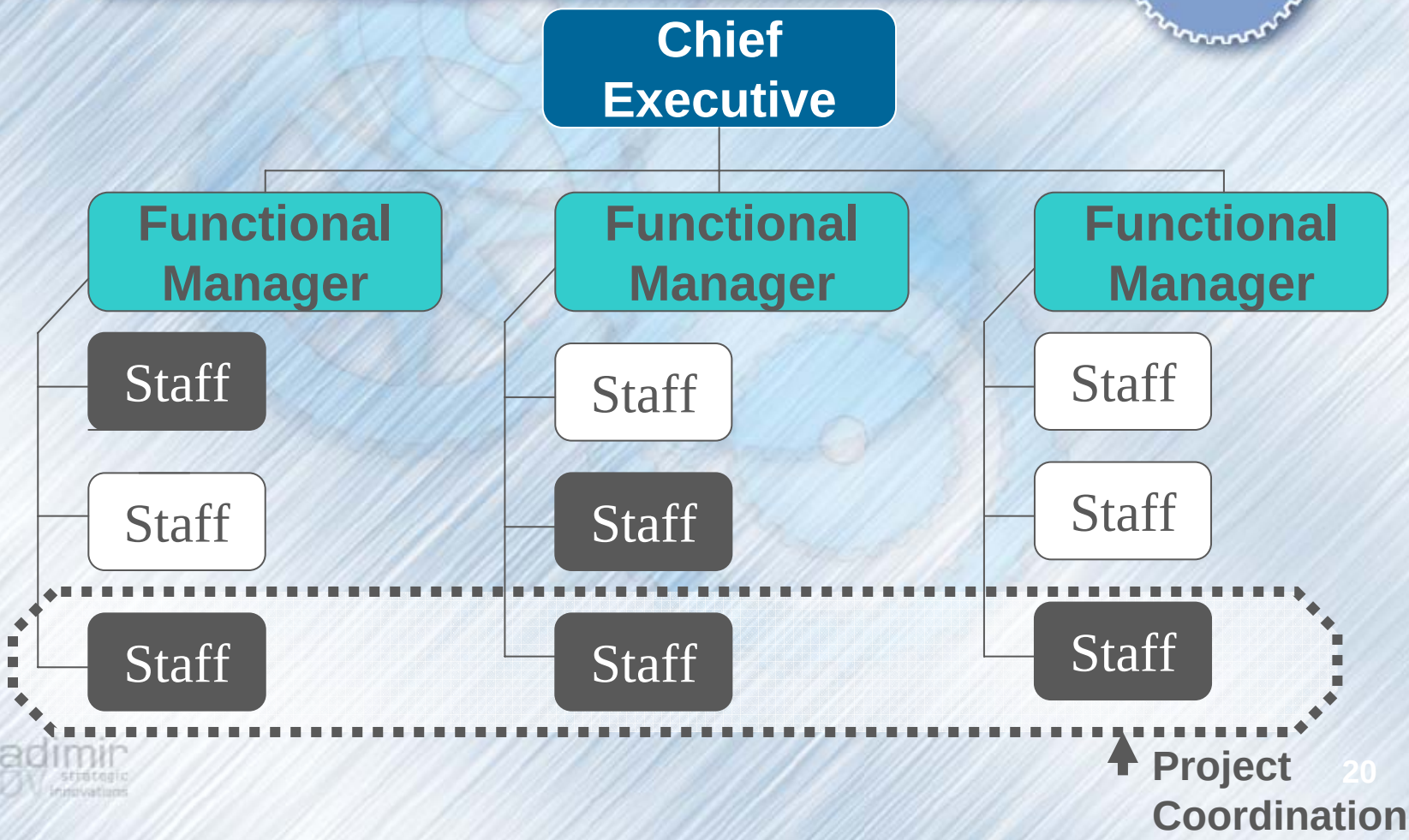
Functional Organization



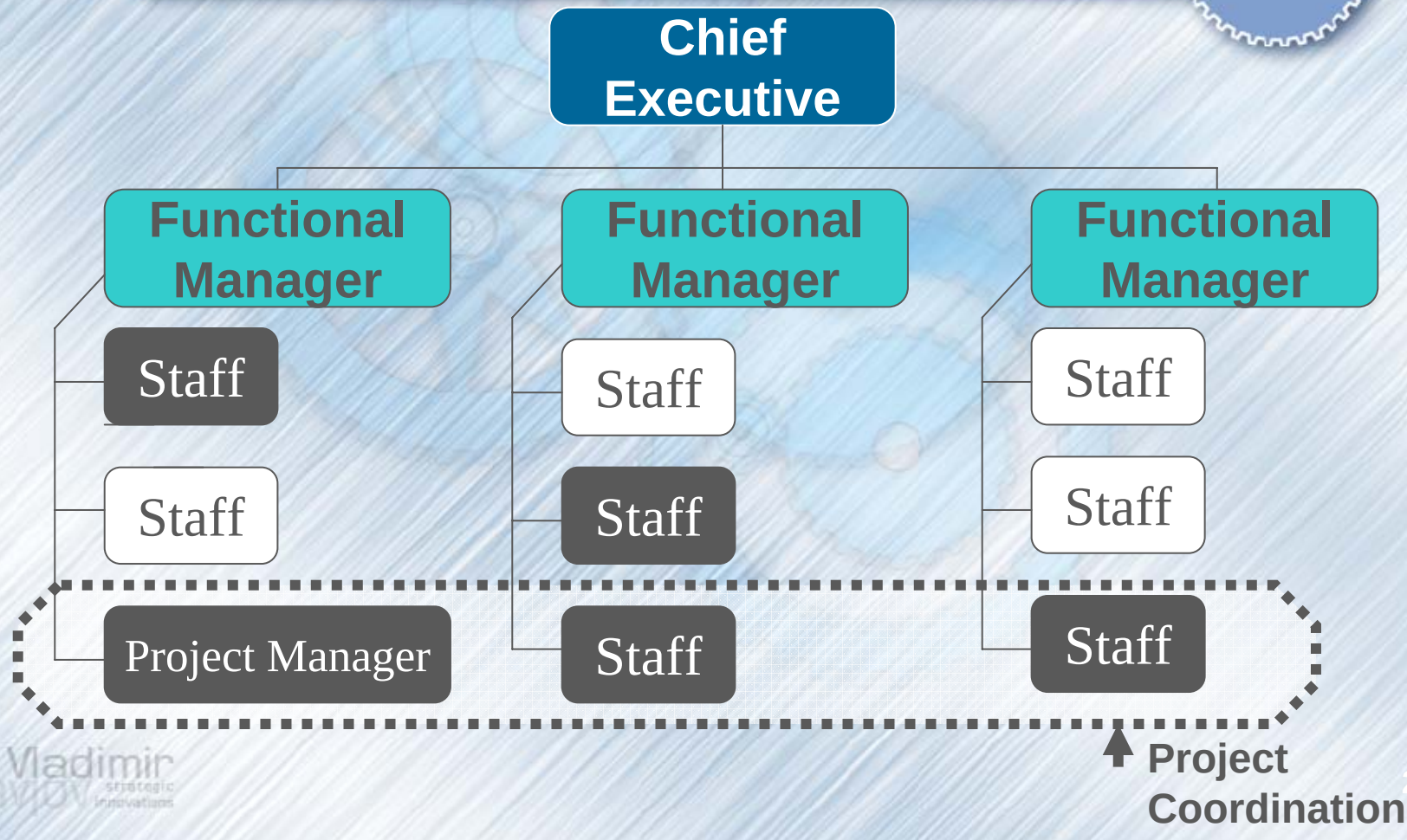
Project Organization



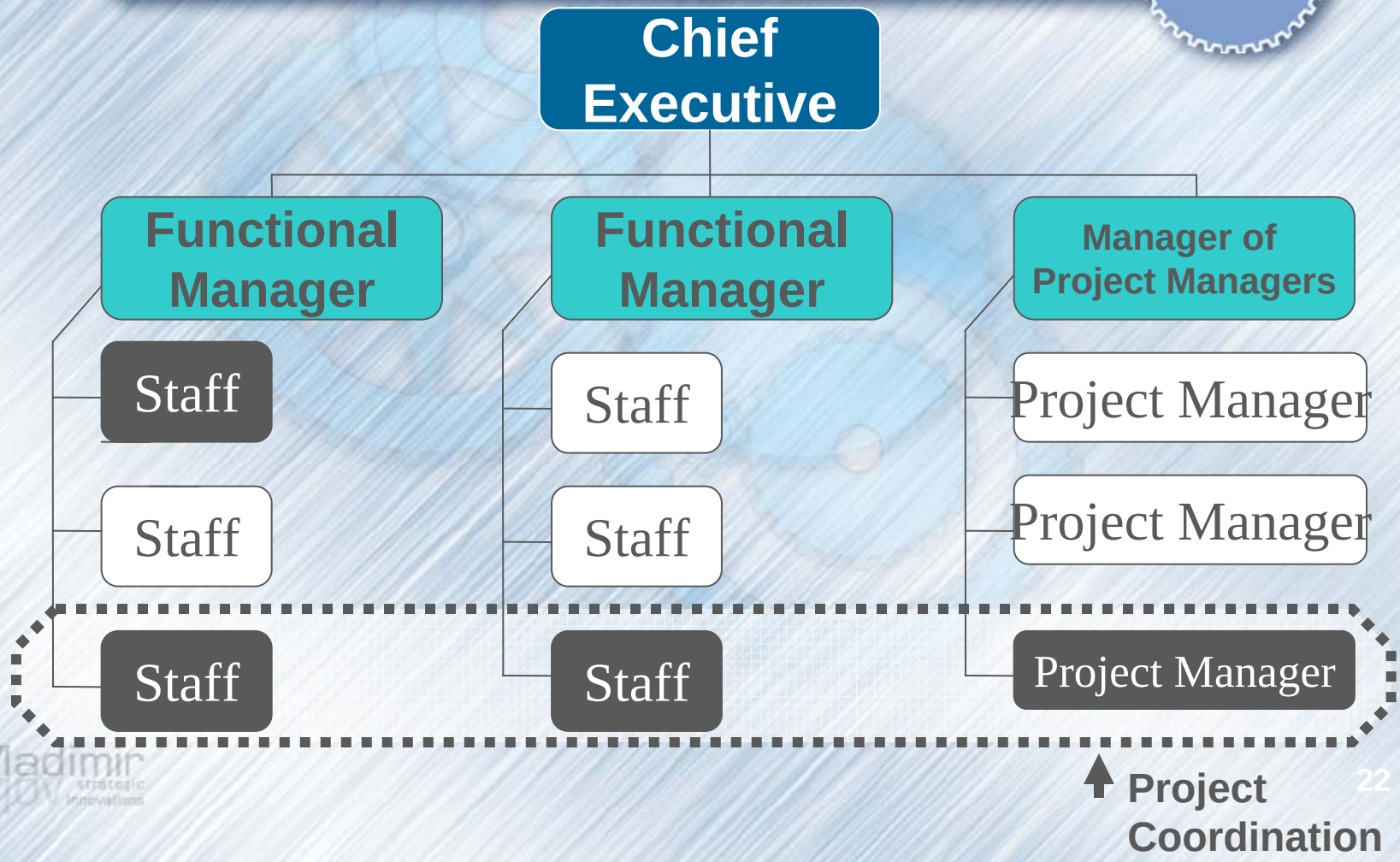
Weak Matrix Organization



Balanced Matrix Organization



Strong Matrix Organization



Our Solution: MiniMax Pattern for Geographically Distributed Matrix Organizations

- If a matrix organization is geographically distributed over number of offices/countries/time zones
  - So it becomes 3D matrix
- Each function should be present on as many sites as possible
  - However, for offshore development some functions (i.e. sales) may not make sense on some sites
- Each project should be allocated to as few sites as possible
  - This is an extension to the known approach called "collocation"
  - However, for offshore development each project will be allocated to at least two sites

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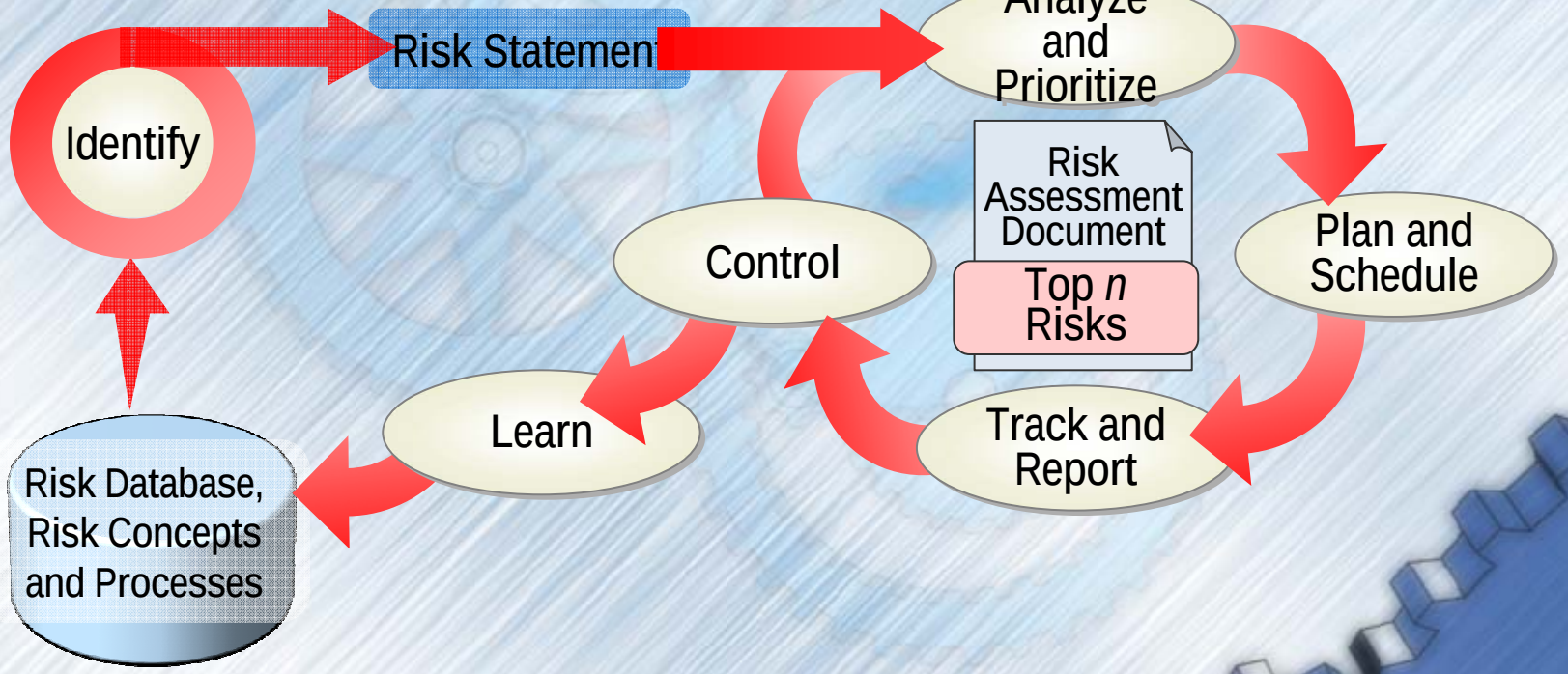
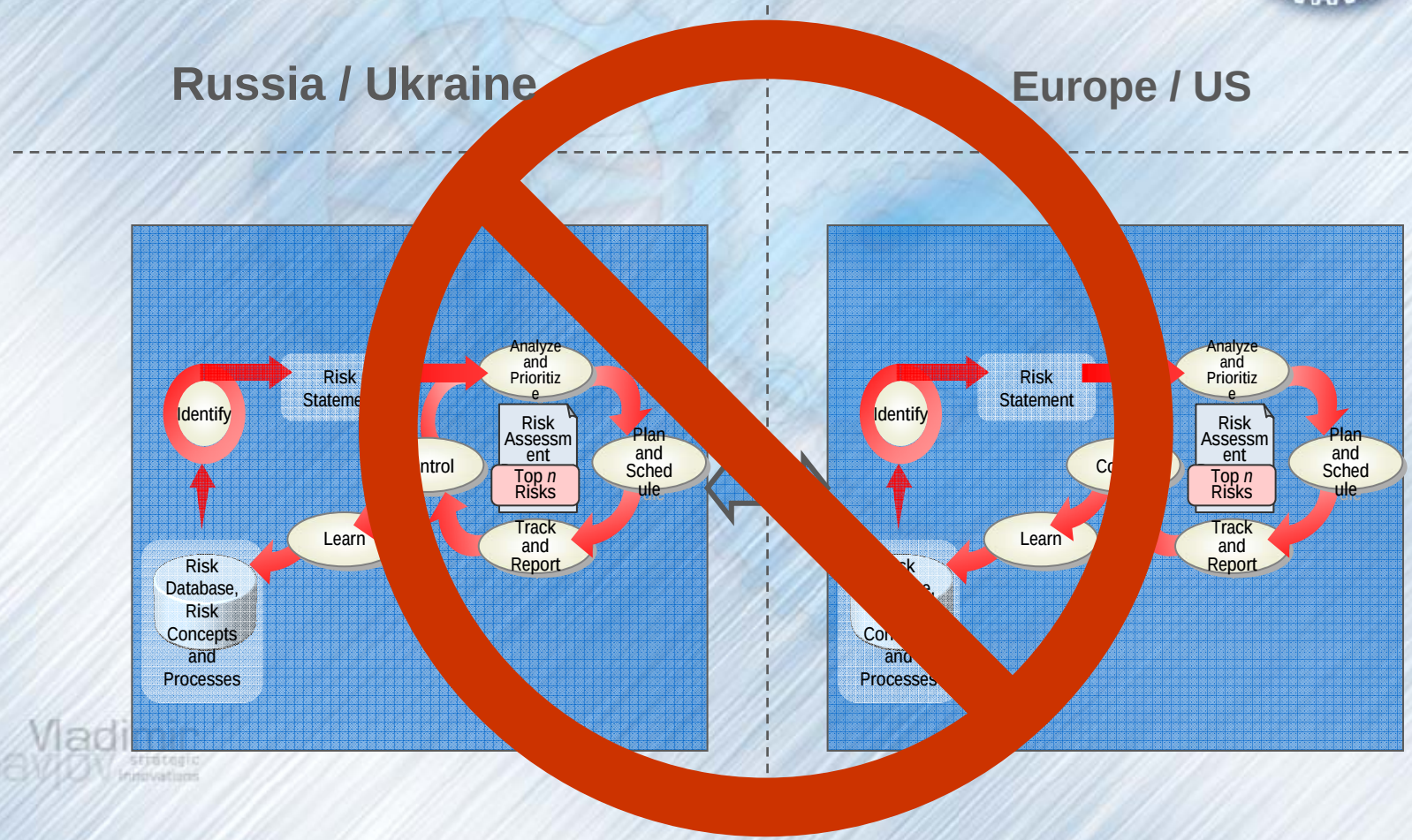
- Organizational Patterns
- **Process Patterns**

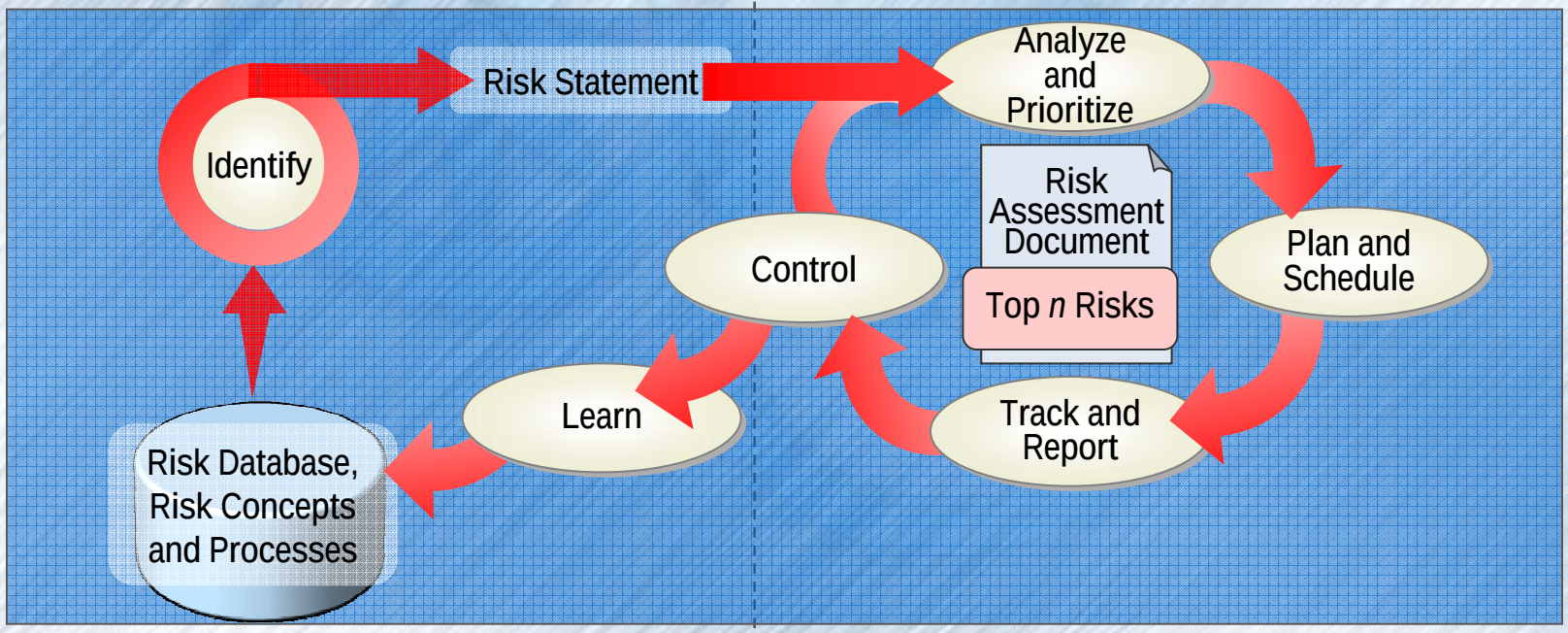
MSF Risk Management Discipline



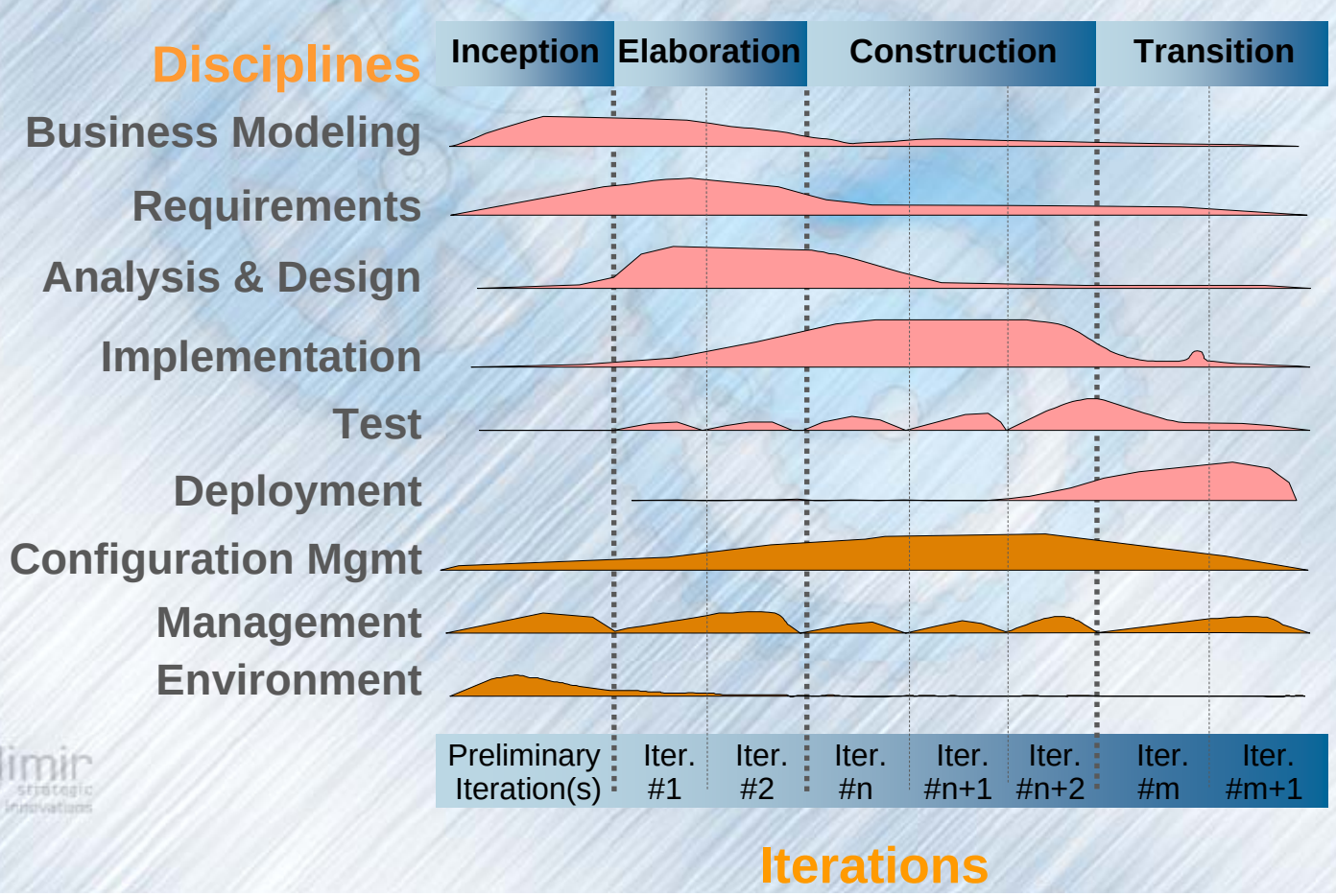
Risk Management for Software Outsourcing Projects



Our Solution: One Transparent Risk Management Process for All Sub-Teams



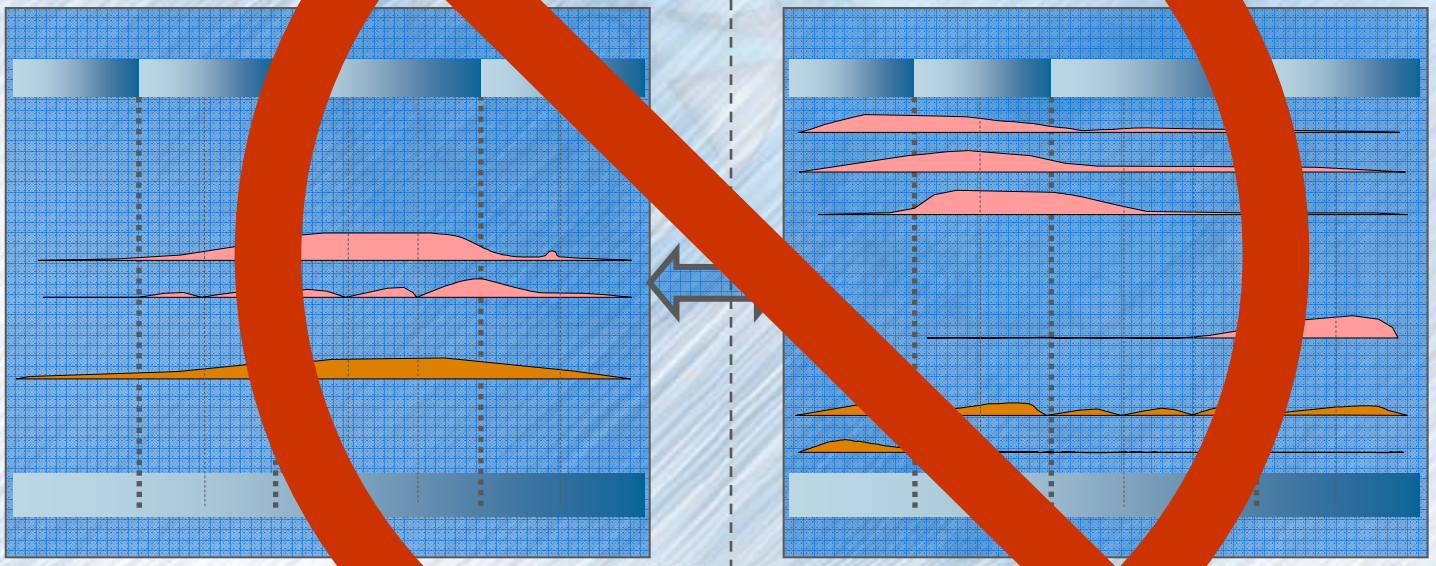
IBM Rational Unified Process



RUP Disciplines For Software Outsourcing Projects

Russia / Ukraine

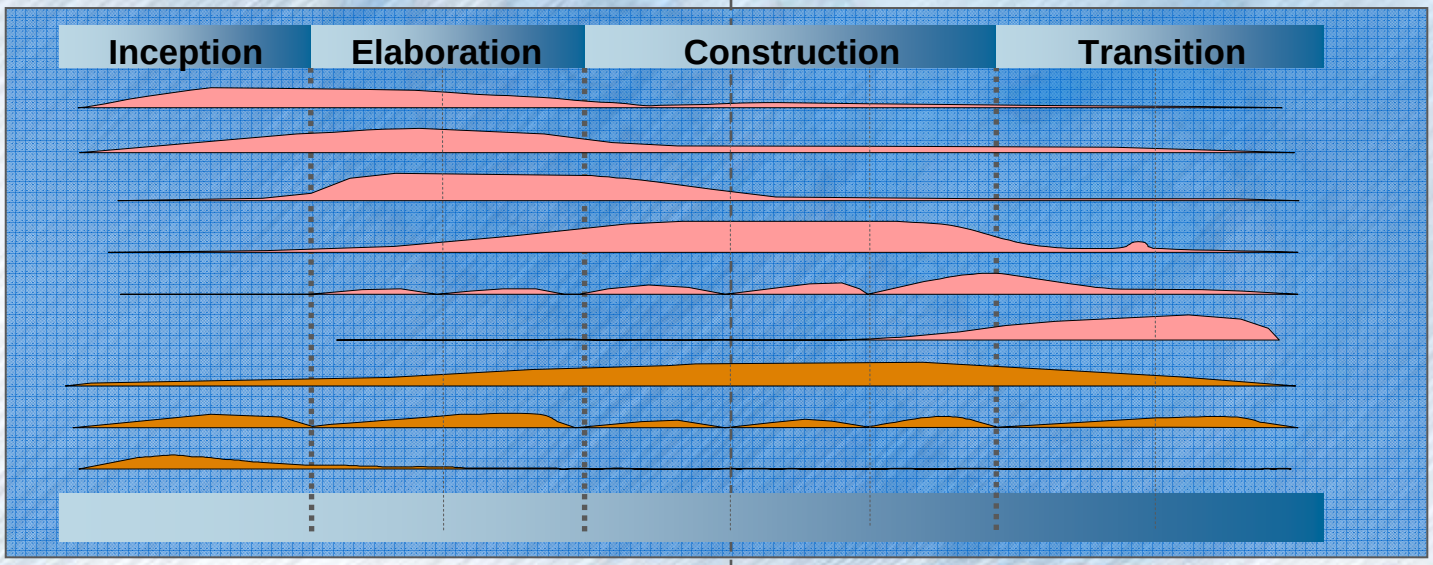
Europe / US



Our Solution: RUP Disciplines For Software Outsourcing Projects

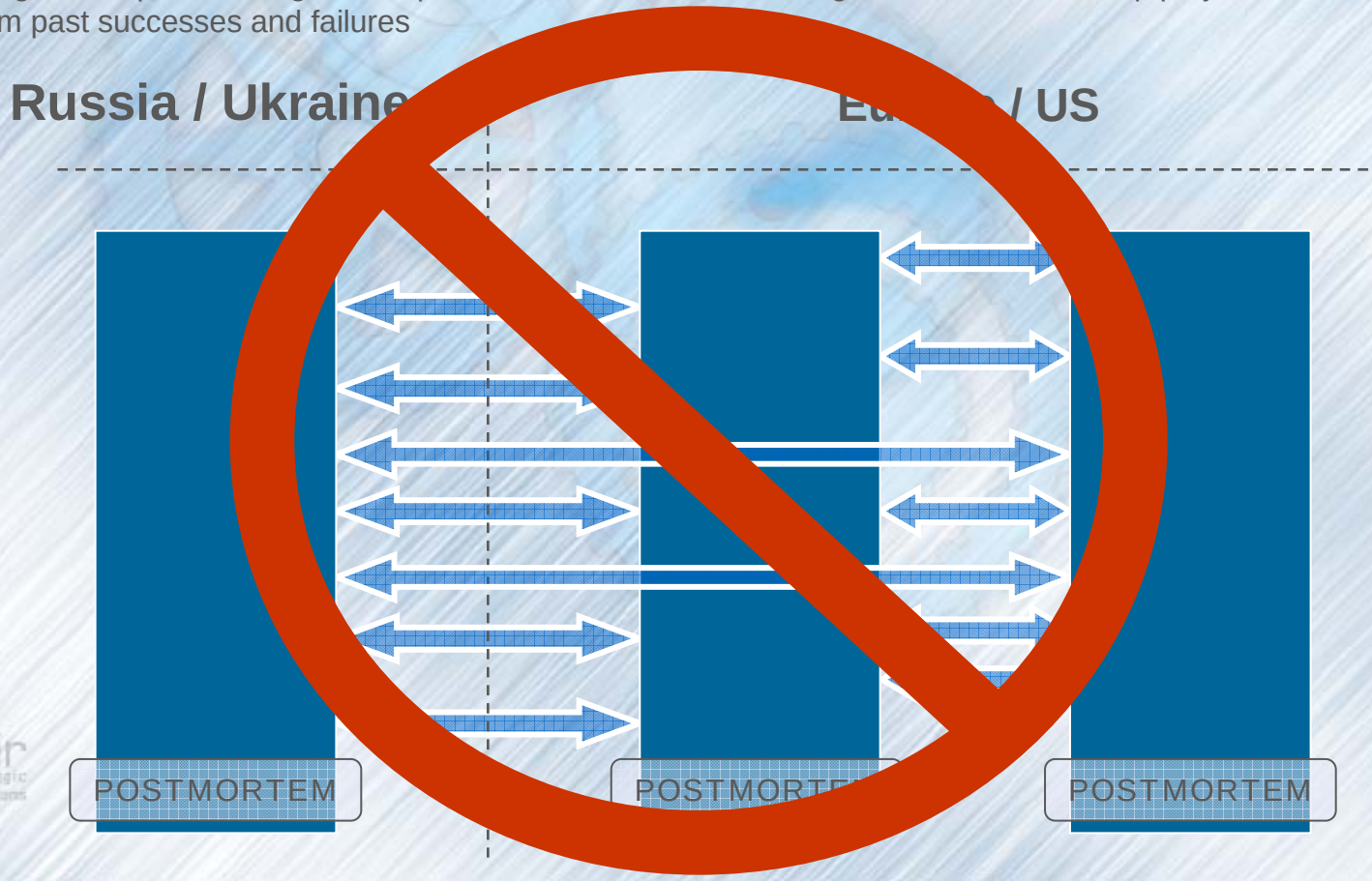
Ukraine / Russia

US / Europe



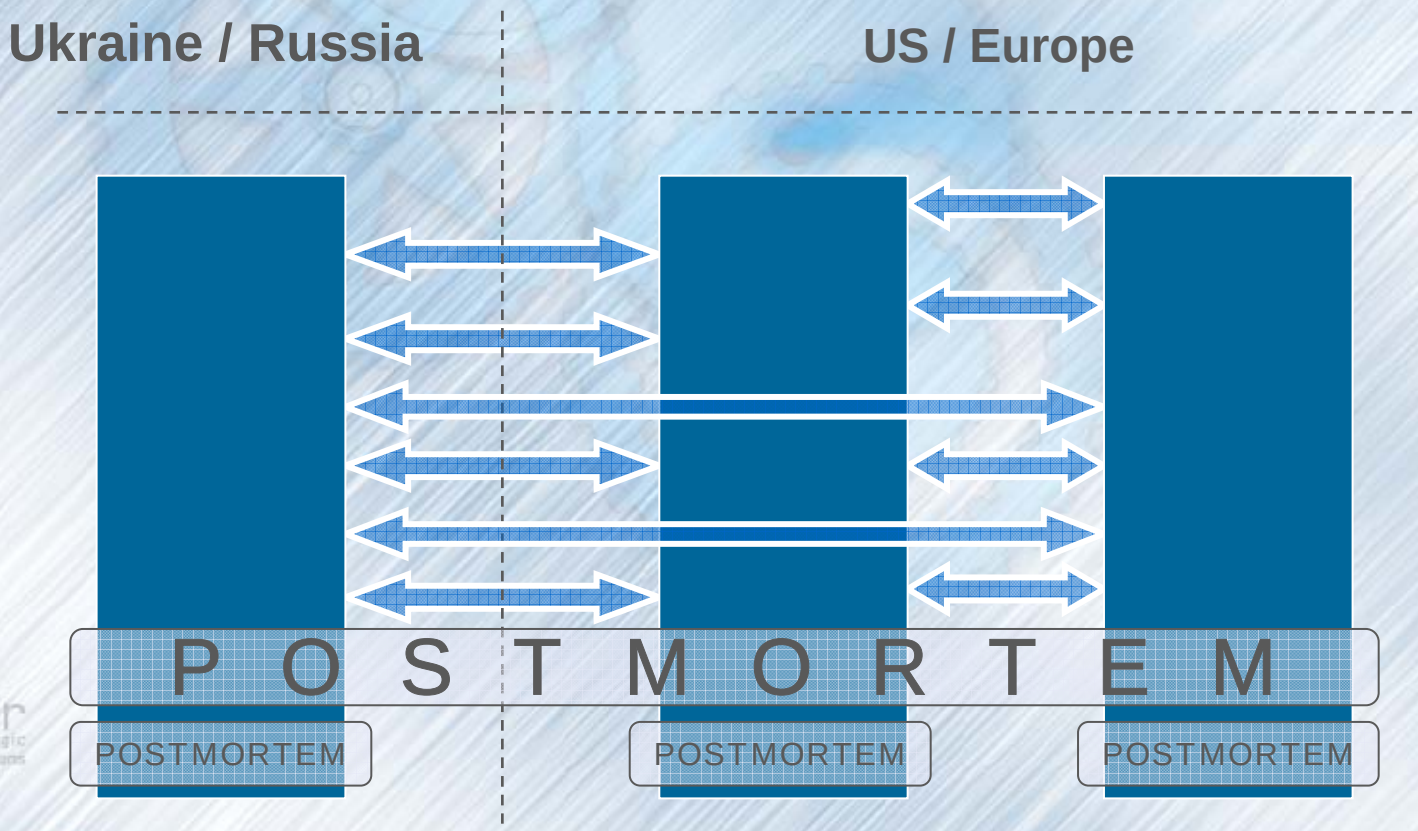
Project Postmortem

A postmortem is a procedure whereby project team summarizes a project's history and analyzes its positive and negative aspects. The goal of a postmortem is to draw meaningful conclusions to help project team learn from past successes and failures



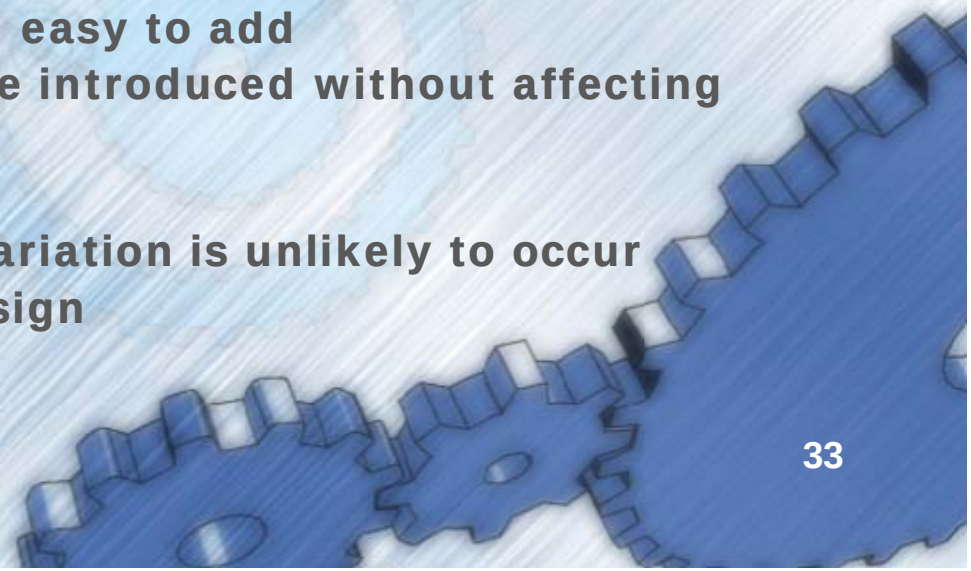
Our Solution: “Big Postmortem” For All Project Stakeholders

Unfortunately, it is not a common practice for offshore outsourcing projects today



One Of The GRASP Design Patterns: Polymorphism

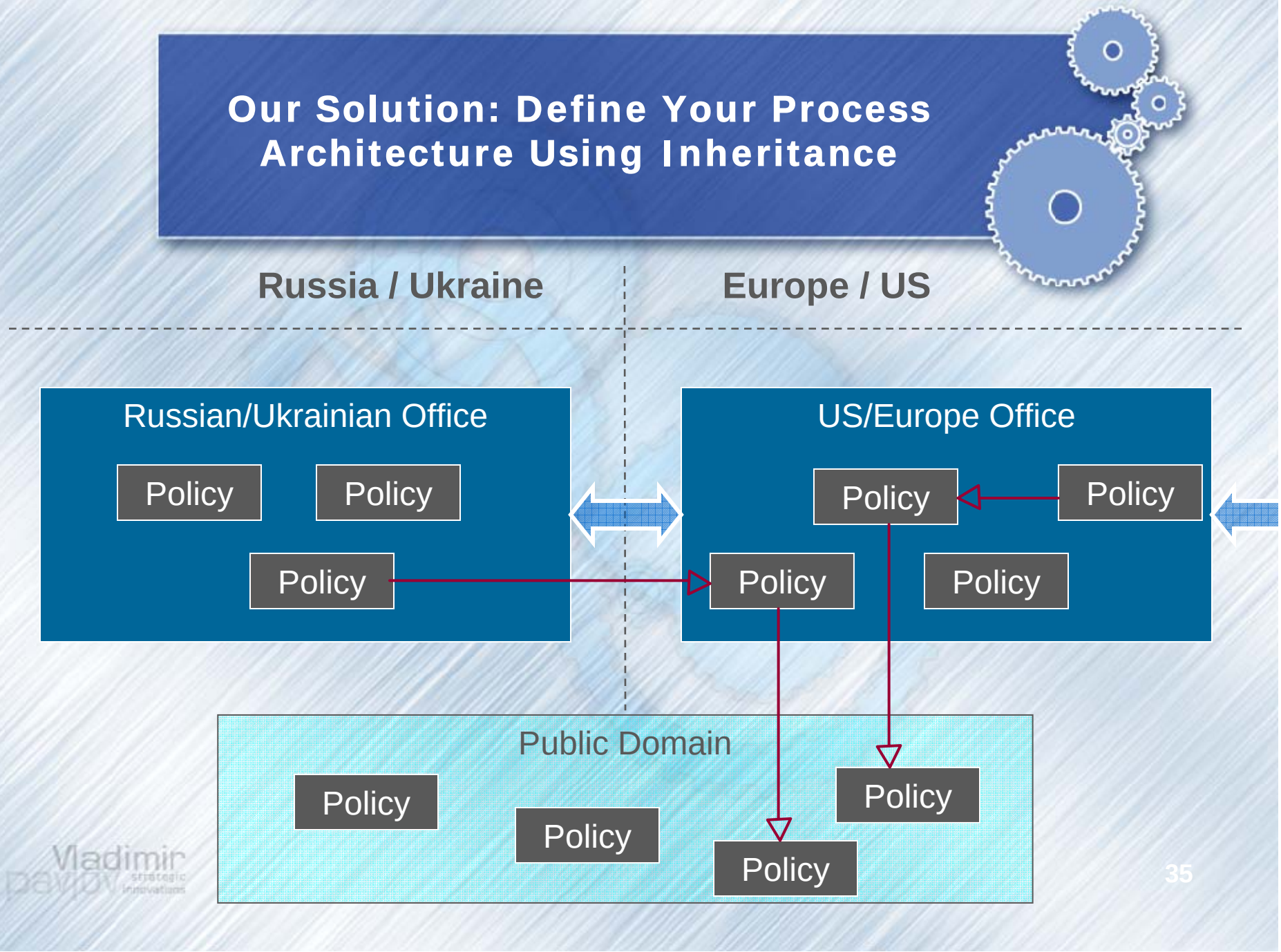
- **Problem:**
  - How to handle alternatives based on type? How to create pluggable components?
- **Solution:**
  - When related behaviors vary by type, assign responsibility for the behavior to types using polymorphism
- **PRO:**
  - Extensions (new variations) easy to add
  - New implementations can be introduced without affecting clients
- **CON:**
  - Avoid “future-proofing” if variation is unlikely to occur
  - Adds additional effort to design



Our Solution: Inheritance Helps Minimize Bureaucracy

Traditional approach	Our approach
Total 64 pages	Total 34 pages

Our Solution: Define Your Process Architecture Using Inheritance



Summary

- MiniMax pattern helps organize work within geographically distributed matrix organizations
  - All functional areas should be covered in all sites
- Every discipline should cover all sub-teams
  - One transparent risk management process for all sub-teams
- “Big postmortem” for all project stakeholders
- Define your process architecture
  - Inheritance helps minimize bureaucracy
- There are many more process patterns out there…

See Also:

- Process Patterns
  - http://hillside.net/ **(English)**
  - http://www.ambysoft.com/processPatternsPage.html **(English)**
- Microsoft Solutions Framework
  - http://www.microsoft.com/msf **(English)**
  - http://www.microsoft.com/rus/msf **(Russian)**
- IBM Rational Unified Process
  - http://www.rational.com/rup **(English)**
- PMI Project Management Body Of Knowledge
  - http://www.pmibookstore.org/PMIBookStore/productDetails.aspx?itemID=110&varID=1 **(English)**
  - http://www.pmi.org/info/PP_PMBOK2000Excerpts.asp **(English)**

See Also:

- "Using MSF for Software Outsourcing" **by V.L.Pavlov and A.A.Terekhov**
  - http://nl.itsmportal.net/binaries/MSF_for_software_outsourcing.ppt **(English)**
  - http://www.ukrsoftpro.com.ua/Pavlov_Terekhov_Kiev2003.zip **(Russian)**
- "Mining MSF for Process Patterns: a SPEM-based Approach" **by V.L.Pavlov and D.Malenko**
  - http://www.vlpavlov.com/pmpe/articles_en.html#2004_September_18_Uppsala **(English)**
- "How To Become An Effective IT-Manager"
  by V.L.Pavlov and A.A.Terekhov (Russian)
  - http://www.computerra.ru/offline/2003/503/28749
  - http://www.vlpavlov.com/pmpe/articles_en.html#2003_August_19_Computerra
- "Software Process Improvement in Russian Company: a Case Study"
  by V.Kiyaev, A.A.Terekhov
  - http://users.tepkom.ru/ddt/articles/SPI_in_Russia.html **(English)**
  - http://www.nsda.ru/home.asp?artId=129 **(Russian)**
- "Formalization and Automation of Global Software Development Processes"
  by V.Kiyaev, I.Sobolev, A.A.Terekhov, B.Fedotov
  - http://users.tepkom.ru/ddt/Articles/DistributedDevelopment.html **(English)**
  - http://users.tepkom.ru/ddt/Articles/DistributedDevelopment_rus.html **(Russian)**

Thank You:

- Alexandr Zverintsev (http://www.nokia.com)
- Alexandr Zhuykov (http://www.isd.dp.ua)
- Andrey Filev (http://www.muranosoft.com)
- Andrey Nizovsky (http://www.waveaccess.ru)
- Anna Tiunova (http://www.lanit-tercom.com)
- Dmitry Bednyak (http://www.dr.dp.ua)
- Irina Mozgovaya (http://www.dsu.dp.ua)
- Nikita Boyko (http://www.starsoftlabs.com)
- Sergey Alpaev (http://www.isd.dp.ua)
- Sergey Goryainov (http://www.isd.dp.ua)
- Sergey Troshin (http://www.lanit-tercom.com)
- Symon Moldavsky (http://www.uaswd.org.ua)
- Victor Churilov (http://www.softcomputer.com)
- Vladimir Ufnarovsky (http://www.lanit-tercom.com)
- Yuri Gubanov (http://www.lanit-tercom.com)
- Yury Us (http://www.softcomputer.com)

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You can download this presentation from http://www.secr.ru or http://www.vlpavlov.com

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