

# Foundation case studies white paper

## June 2010

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## 1 Objectives of the white paper

In October 2009, the CEISAR published a white paper defining “**Foundation**” as a set of Models reusable by Business Solutions, and proposing a **standard classification** of the various parts of a Foundation.

This new white paper aims at showing Foundations in action in real life projects.

The objectives of the white paper are to:

- Give real life **examples** of projects where a Foundation was used or built
- Show the **benefits** of using a Transformation Foundation, an Exchange Foundation or a Building Foundation
- Show critical success factors and **lessons learnt** from real projects

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## 2 What is a Foundation?

The purpose of this section is to provide a short summary of the main definitions on Foundation. For those who want more information, you can download the previous Foundation White Paper on [www.ceisar.org](http://www.ceisar.org).

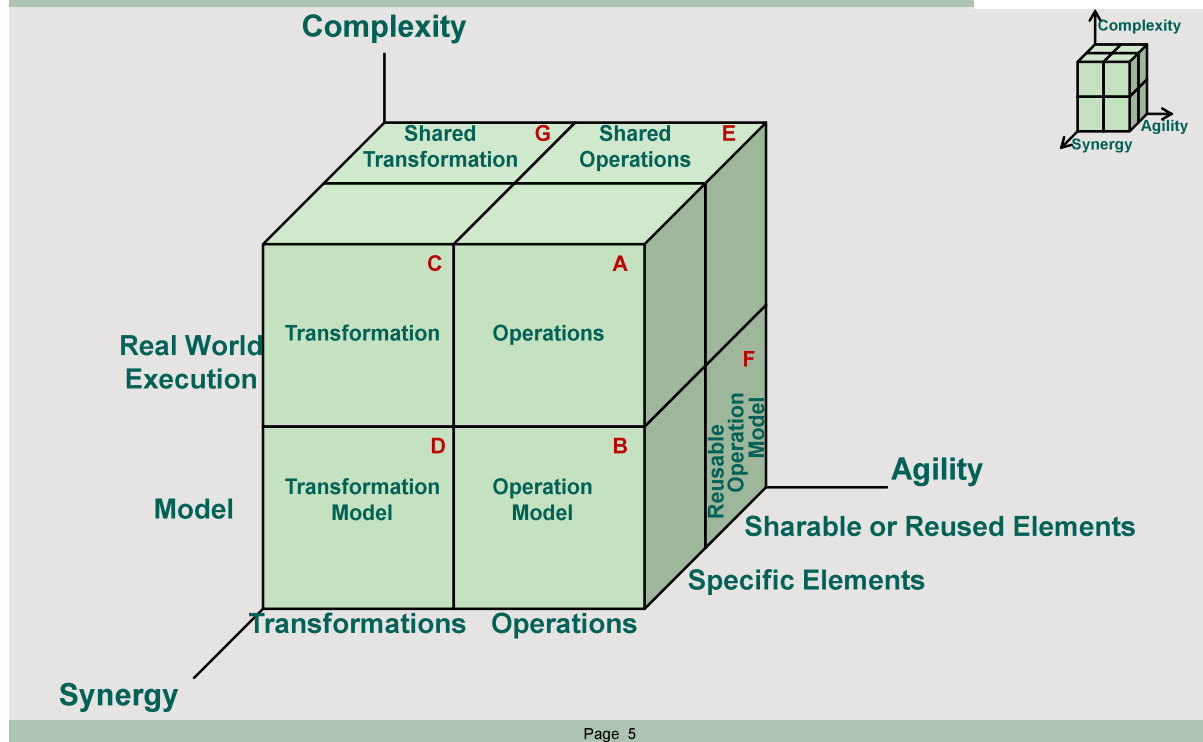
The three main concerns expressed by the CEISAR sponsors and many global Enterprises are to:

- Manage and reduce (unnecessary) **Complexity**
- Increase **Agility** in an ever changing environment
- Develop **Synergy** between the different Organizational Units in the Enterprise

To address these three main concerns, we developed the CEISAR Cube, as a way to represent an Enterprise:

- to reduce **Complexity**, we must formalize how the Enterprise works: we split “**real World Execution**” (upper layer of the cube) from its “**Model**” (lower layer of the cube) which represents this formalization: Roles, Processes, Software, Information Model
- to increase **Agility**, we must split **Operations** (right side of the cube) which is running the Enterprise every day, from **Transformation** (left side of the cube) which means Building or Modifying the Model on which Operations are executed. Operations is producing, selling, supporting Customers while Transformation means “Projects” to prepare new Models: new Processes, new Products, new partnerships
- to develop **Synergy**, we must define what is **Shared** (rear part on upper layer) in real world execution like Teams, Information, IT Operations and which Models are **Reused** (rear part on lower layer) like Roles, Components, Solutions, Information Models.





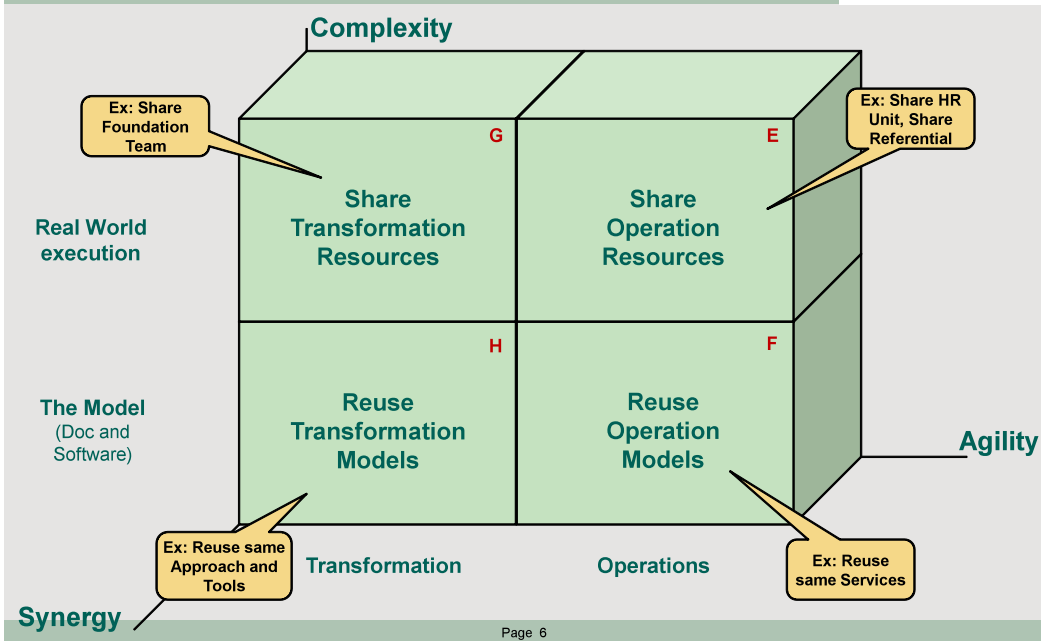
We define **Synergy** as

- either **Reusing Models** : reusing business definitions (information Model) or Business Processes (Action Model) or Components or Solutions or standard Organization patterns (Actor Model)
- or **Sharing Resources**: sharing Information or sharing Actors

**Foundation** is defined as the set of **all Reusable Models** (F and H blocks):

- F is **Operation Foundation**; it includes all Model elements Reused in Operations:
  - **Operation Components** to Build internal Solutions,
  - **pre-Built Solution Models** which can be reused by different Companies of a Group (provided by Package providers or by a Group Unit working for several Companies of the Group)
- H is **Transformation Foundation**: it includes all Model elements Reused in Transformation like:
  - Project Approach which can be Reused by different project teams
  - Tools Reused by different project teams to Build Solution Models and Operation Foundation.





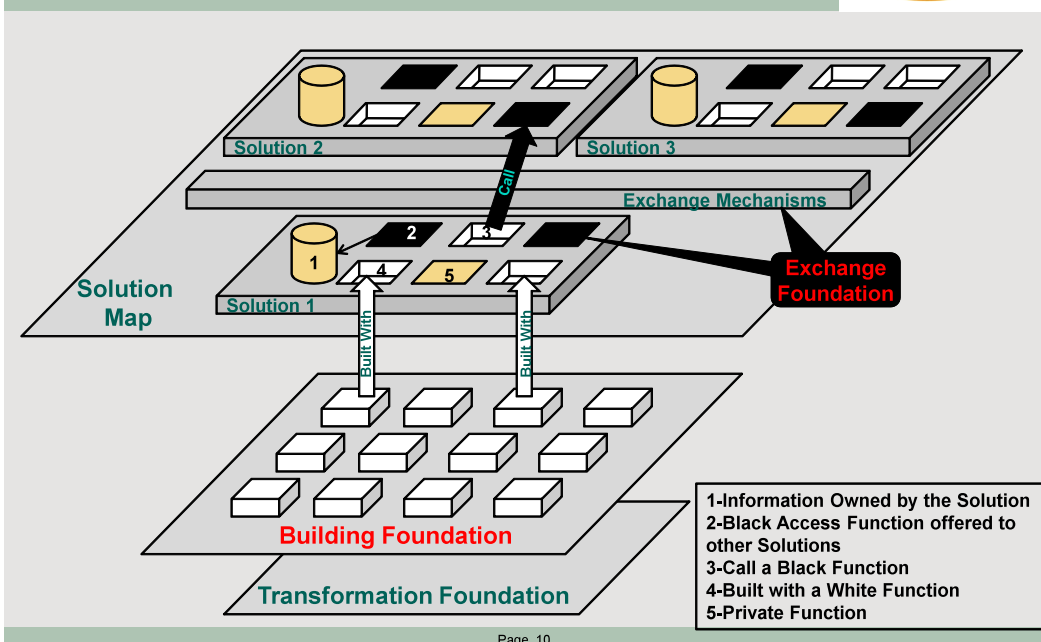
## 2.1 Operation Foundation

**Operation Foundation** is the set of all Reusable Models used to build **Operation Solutions**. It includes **Exchange Foundation** and **Building Foundation**.

**"Exchange Foundation"** gathers all elements required for interoperability between Solutions: Solutions can be Built with different Transformation tools, but they exchange. It brings unicity of information, good structure, independence and decreases complexity. Example: call the Security Function.

**"Building Foundation"** gathers all possible Reusable elements when Solution Models are Built with the same Transformation tools. It brings Agility, unique User Interface and decreases complexity if it is well Built (see below). Example: Life Insurance Contract is a specialization of Insurance Contract.

## Exchange and Building Foundation



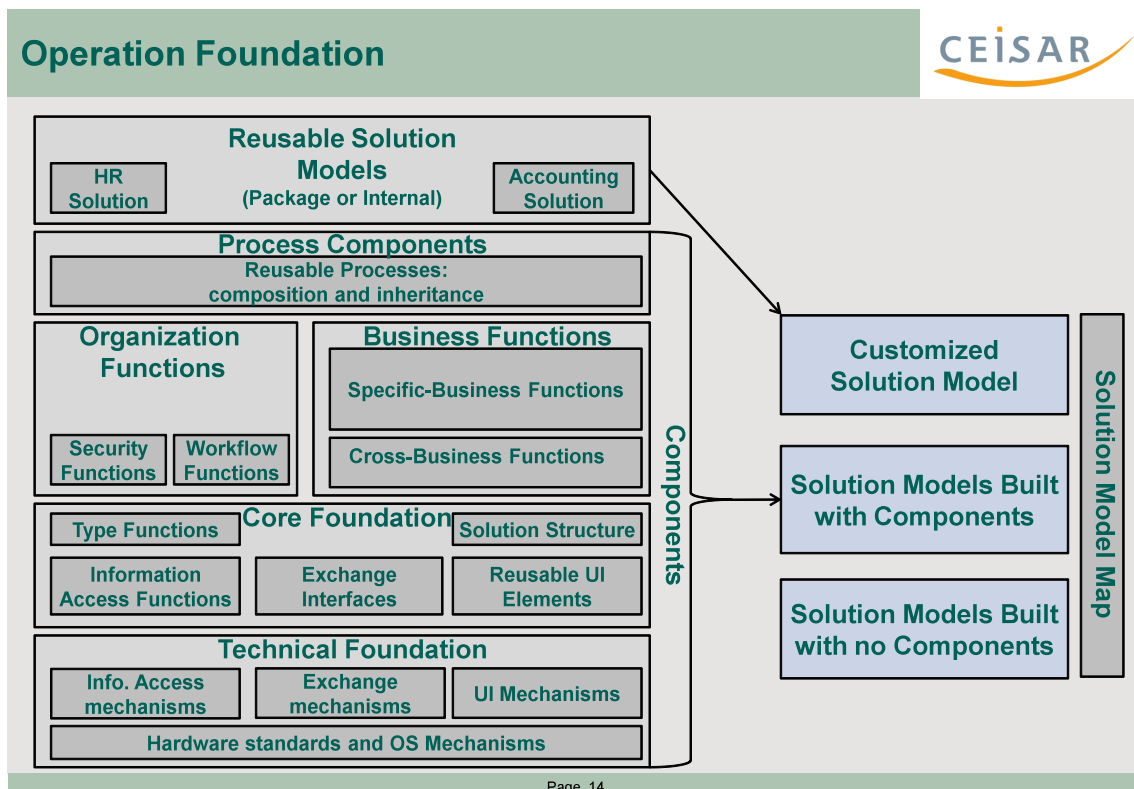


We developed a classification of Foundation building blocks. To build the various Solutions that are described in the Enterprise **Solution Model Map**, two kinds of Reusable elements can be used:

- **Reusable Solutions** (like off the shelf software packages)
- **Components** (like software services or framework of classes for development)

Components can vary from technical objects to more business-oriented elements:

- Technical Foundation
  - Hardware standards and OS mechanisms
  - Information Access mechanisms (typically low level database services)
  - Exchange mechanisms (ETL, EAI or ESB ...)
  - UI mechanisms (UI controls which can be used to develop a User Interface)
- Core Foundation
  - Information Access Functions (Services developed to expose data to other applications, preventing uncontrolled direct access to data)
  - Type Functions (like date, formatted string, table, text; image, video, ... which carry a part of the behaviour of data)
  - Exchange Interfaces (interfaces between applications developed using Exchange mechanisms)
  - Reusable UI elements (set of controls assembled together to build a full screen or part of a screen)
  - Solution Structure (an overall structure for an application including navigation, menus, options, like in a portal / which helps standardizing UI and accelerating their development)
- Organization functions
  - Security Functions (like Identity management, Right Management ...)
  - Workflow Functions (like to do list and flow control)
- Business Functions
  - Core Business Functions (High level business functions which can be Reused in all Industries)
  - Specific Business Functions (Industry or Company specific Business Functions)
- Process Components
  - Reusable Processes (Patterns of Processes which can be reused)





## 2.2 Transformation Foundation

Transformation can be defined as Transformation Actors (Human Actors and Computers) executing Transformation Actions (Projects, maintenance) with Transformation Information (Planning, Goal, Constraints...).

In Transformation Foundation we group:

- Reusable Transformation **Roles**: Project Manager, Business Analysts, Developers
- Reusable Transformation **IT Configuration**: hardware, OS and network which are used
- Reusable **Methodologies**, Good practices, and **Tools** to support them
- Reusable **Information Model** for Transformation

All of them can be Reused by the different Companies of a Group or by different teams in a Company.

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## 3 Foundation case studies

### 3.1 Eight case studies on Foundation show this is a key subject in Enterprises today

This white paper includes 8 case studies, relating projects where a Foundation was built or used (or both).

- **“Allianz France IT Architecture Program”** shows a case where the limits of the traditional silo-based approach to building an IT landscape was acknowledged and the top management recognized the need to invest in a Foundation to serve future business needs better while developing agility and synergy. Allianz France decided to invest massively on an IT Architecture Program with no direct Business “client” but the will to develop building blocks for the future.
- **“Arvato Services Dharma project”** shows a good example of an Exchange Foundation developed to integrate best of breed applications (either developed in house or bought from software vendors). The case also exemplifies the development of a Transformation Foundation based on a cooperative Approach and collaborative development tools. The project brought tangible business benefits in a short time frame and improved Arvato Services position compared to competition.
- **“AXA France Axiome Program”** shows how to integrate and leverage a standard package in a existing IT landscape, reusing and enhancing an existing Foundation and without creating useless redundancy as in a classical “I build my silo from scratch” approach. This case also shows the costs and benefits of this “clean” integration.
- **“Credit Du Nord Transformation”** explains how this bank totally transformed itself (both Business and IT) to stay alive in the 80s. A Foundation was built and the good architectural principles underlying its implementation are still visible today even if technology has evolved. The benefits can be clearly analyzed with a 25-year perspective.
- **“Oberthur CPS Program”** shows how an heterogeneous global Organization can be optimized to improve time to market and quality of service by developing a global view of the business and a standard approach to the development and production of smart cards. This case is a good example of a Building Foundation used to accelerate development and a Transformation Foundation based on an iterative approach and automated development instead of a classical paper based linear approach.
- **“TOTAL Exploration & Production Field Monitoring Project”** shows the development of a group of applications required to monitor the performance of different types of fields, based on a common framework: a Transformation Foundation, an Exchange foundation and a Building Foundation. Each site can easily build its own Solution based on these Foundations. Getting access to the right information in a timely manner provides benefits on the optimization of the field extraction and enables mobility thanks to the common foundations shared by all sites.
- **“TOTAL Gas & Power SOA Project”** shows how an Exchange Foundation helps improving business agility in an highly competitive environment. In one year, TGP has gained 3 years worth of learning for SOA maturity. Team quality, overall vision and strategy, business orientation, appear clearly as the main strengths. TG&P is doing the SOA Program for the right objectives and doesn’t seem to over-expect from it. The maturity in software engineering practices helps TG&P to progress steadily in the SOA Program.
- **“TOTAL Refining & Marketing SAP “Template Europe” Project”** is an example of how you can reduce complexity and improve convergence of different Units towards a common IT and Business



Operating Model by using an Exchange Foundation and a Building Foundation, based on a common ERP package. It also shows how thanks to a common Template and single instances operated centrally the IT maintenance and operations costs can be significantly reduced. Finally it is a great example how Processes can be aligned at the European level when leveraging properly an ERP.

All case studies have been built on the same outline: First we describe the Enterprise, its business and key figures and the **context** of the project. Then we explain the shortcomings of the current situation and the objectives of the project (in a section we call “**The problem**”). Next we describe the **target** situation. We then detail the **project** to deliver this target: phases, key facts, approach and tools, difficulties and lessons learnt. Finally, we explain the **value** delivered by the project and the future possible extensions.

## 3.2 Lessons learnt from the case studies

The case studies below share common patterns that demonstrate the typical situation of many Companies, the benefits, the difficulties and critical success factors of building and using a Foundation. Using the same outline as the case studies, we have summarized the most common patterns that appear in the different case studies.

These case studies confirm the principles established in the Foundation White Paper.

We tried to classify the conclusions into:

- What Problem did Enterprises decide to solve thanks to Foundations
- What Value has been gained or is expected from Foundations
- Recurring patterns in the Target Solution
- Common characteristics in the Project

### 3.2.1 What Problem did Enterprises decide to solve thanks to Foundations

Motivation for Foundation has mainly been reducing Complexity and increasing Agility.

**Complexity of the existing Information Systems** is a recurring characteristic in many companies. Information systems have been built over time and have become more and more complex, very often redundant, especially because of mergers and acquisitions. This is the case for AXA France, who acquired several companies, which had their own specific systems. When they were using the same package, installed versions were different which is true each time a Group requires a standard ERP to be used but lets local Companies implement it their own way (like TOTAL RM in Europe).. This situation obviously called for a convergence effort. because it limits the economies of scale and sharing of best practices as business Processes are not aligned. Activities are too tightly linked to each site, which limits the moving of people or activities from one site to another (See Total RM and also Oberthur for a good example).

This complexity has a direct impact on the **Agility** of the Enterprise, which becomes increasingly too **slow to change**. A classical sign of this is the difficulty to deliver new products to the market rapidly. Several cases show a desire to improve the time to market of new products or new distribution channels (See AXA, Allianz, Arvato Services).

The complexity also has a direct impact on costs:

- Not only **High costs for Transformation**: Upgrading and driving new Transformation Projects becomes more costly because of the Multiplication of Solutions, and CIOs are required to reduce costs (See Arvato Services, AXA or Total for good examples)
- But also **High costs for Operations**: the specialization of user interface isolates teams, end to end Processes are executed through different Solutions, security Functions are specific to each Solution, Workflow mechanisms are difficult to implement when work is executed using different Models...

### 3.2.2 What Value has been delivered or is expected from Foundations

The typical benefits expected and/or demonstrated are:

- Reduced complexity and improved synergy
  - **Lower Operations Costs** (either for the business or for the IT application)
  - **Lower Transformation costs**



- Business Operations are better standardized and best practices are generalized (OCS, TOTAL Template Europe), which helps managing internal resources globally
- Increased **Agility**
  - Reduced time to market (AXA, Arvato Services)
  - Faster upgrades (Allianz, AXA, TOTAL)
- The new target is a **long-term model**, which can grow and evolve rapidly to face any change required by the environment or a new strategy, with controlled costs (See Allianz, AXA, Crédit du Nord, Oberthur or Total)
- The new Target improves the **quality of Business Operations** (improved offering for AXA partners, quality of service for Arvato, improved decision making for Total EP)

### 3.2.3 The Target: Exchange Foundation for all and Building Foundation for the most ambitious programs

As they realize the limits of the silo approach (one need, one solution), Companies turn to the Foundation approach to reduce Complexity, improve agility and synergy (Allianz, Arvato, AXA, OCS, Total Field Monitoring, Total Template Europe) by developing one or a combination of the different Foundations.

To reduce Complexity, **Exchange Foundation** is the basic layer on which all Companies build their new target. It is present in all cases. SOA programs are the recent form of this kind of approach (See Arvato Services and Total GP) but Exchange Foundations have been used for a long time (See Crédit du Nord).

When a significant part of the target is built in house, or when some configuration must be made available to cope with local variations, the Enterprise can be more ambitious than just using an Exchange Foundation: it decides to get a **Building Foundation** (especially for Crédit du Nord, Oberthur, Total EP). This is the best way to improve Agility by providing the basis for accelerated development of new or upgraded Solutions.

Standard packages are often said to be contradictory to a Foundation approach and contributing to the “silo” effect. In fact, if properly integrated, they can reuse the Foundation and, more, they can also contribute to the Foundation (See AXA, Total Template Europe). Initial extra integration costs appear but this architecture yields greater benefits in the longer term.

### 3.2.4 The Project: Ambition, top management support and innovative practices are key

As Enterprises have built complex systems over time through big or small projects, it appears necessary to get the big picture and to consider a major reconfiguration (‘leap forward’): The most ambitious programs provide a lot more improvements in reduced Complexity and improved Agility and Synergy; ‘leap forward’ yields more benefits than **progressive improvements** (Allianz, Arvato Services, Crédit du Nord, Oberthur Technologies).

This requires admitting that the business case of the Foundation project should be based not only on financial ROI, but also considers other quantitative and qualitative indicators. For example, Allianz France Foundation Project is considered has an ‘enabler’ for other Transformation Projects and is mainly monitored on indicators showing the reduced Complexity rather than financial ones. This was also demonstrated by Projects that realized some benefits that were not foreseen at the beginning of the project (See AXA Axiome program).

In this context, a **high-level sponsor**, demonstrating Top management support and a long-term vision is required (Allianz top management “we build for the future”, Arvato, Crédit du Nord, Oberthur Technologies). Breakthrough innovation has more impact than short-term improvement projects dictated by companies led by next quarter financial results.

Such a Program is the occasion to adapt or develop a new **Transformation Governance**: in some cases, specific Program Governance was established for ambitious leap forward as usual Governance practices were not adapted.



The main patterns in the **Organization** of the Project are:

- **Small high skills teams:** Companies try and avoid building huge program teams and concentrate the project team in a small structure of highly skilled professionals with Business and IT expertise, favouring quality over quantity (Arvato, Crédit du Nord, Oberthur Technologies)
- A **dedicated new structure** prepares future Foundations while teams in place continue to improve present Model (Crédit du Nord, Oberthur Technologies). This is especially necessary when Enterprises want to introduce a totally new Target (leap forward).
- The Foundation team is independent from the Solution Projects teams with its own deliverables and objectives (Allianz, Crédit du Nord, Oberthur Technologies). Solutions Projects use the Foundations with the support of the Foundation team.

A powerful **Transformation Foundation** is required to optimize Projects: the **right Transformation approach** with the **right Transformation tools**. In several cases, the project was used to implement new Transformation Approach and Tools (Arvato Services, Oberthur Technologies). The Transformation Approach is usually based on collaboration and iterative development (**Cooperative Approach**):

- Productivity of Transformation team comes from
  - A very clear definition of **global goals** of the project, shared by all team members, and not by detailed specifications (Oberthur Technologies)
  - Automation of the Transformation Processes with tools, providing an active model (MDA) rather than paper based requirements (Crédit du Nord, Oberthur Technologies)
- A shortened development cycle by uniting Business and IT in the same team (Arvato Services, Crédit du Nord, Oberthur Technologies)
- The size of the project was very variable (between 32 and 700 man-years). But even in long Programs, it was key to be able to deliver results on a regular basis. The Transformation Approach is based on **iterative** steps, with short-term results (Crédit du Nord, Oberthur Technologies, Arvato Services). For instance, the AXA Axiome Program uses time boxing and delivers a new version twice a year.



Company	Allianz	Arvato	Axa	CDN	OCS	Total-EP	Total-RM	Total-GP
Project	IT Architecture	Dharma	Axiome	OMF	CPS	Field Monitoring	SAP Template Europe	SOA
Problem								
Complexity of existing IS	yes	yes	yes	yes	yes	yes	yes	yes
Slow to change	yes	yes	yes	yes	yes			yes
High cost for Operations		yes		yes	yes		yes	yes
High cost for Transformation		yes	yes		yes	yes	yes	yes
Value								
Agility/Time to Market	yes	yes	yes	yes	yes			yes
Long term Model	yes		yes	yes	yes	yes	yes	yes
Operation Quality				yes		yes	yes	yes
Operation Costs		yes		yes	yes		yes	yes
Transformation Costs	yes	yes	yes		yes	yes	yes	yes
Target								
Exchange Foundation	yes	yes	yes	yes	yes	yes	yes	yes
Building Foundation			yes	yes	yes	yes	yes	
Transformation Foundation		yes		yes	yes	yes	yes	yes
Project								
High Level Sponsor	yes	yes		yes	yes	yes	yes	yes
Leap Forward	yes	yes	yes	yes	yes	yes		yes
Transformation Governance	yes	yes		yes	yes		yes	yes
Size in man-years (5 first years)	15M€ over 3 years		210 my	700 my	200 my	32 my	>1000 my	50 my
Organization								
Dedicated new structure	Yes	Yes		Yes	Yes			Yes
Business and IT in same Solution team		Yes		Yes	Yes	Yes	Yes	Yes
Independent Foundation team	Yes		Yes	Yes	Yes	Yes	Yes	yes
Cooperative Approach								
Global Goal but no detailed specs				Yes	Yes		yes	
iterative			Yes	Yes	Yes			