

Adaption of AM Industry Standards in a Scientific Environment

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Asset Management (AM)

ALBA Synchrotron 27.09.2018



Introduction of EuXFEL

European XFEL—a leading new research facility



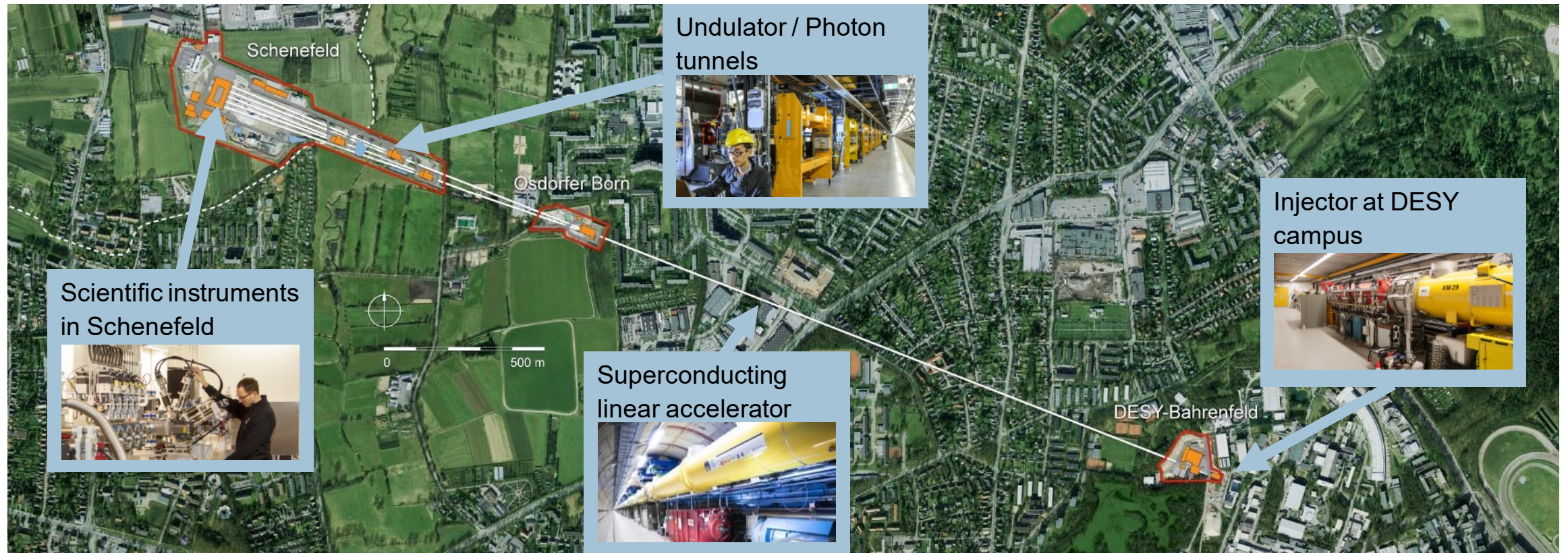
European XFEL—a leading new research facility



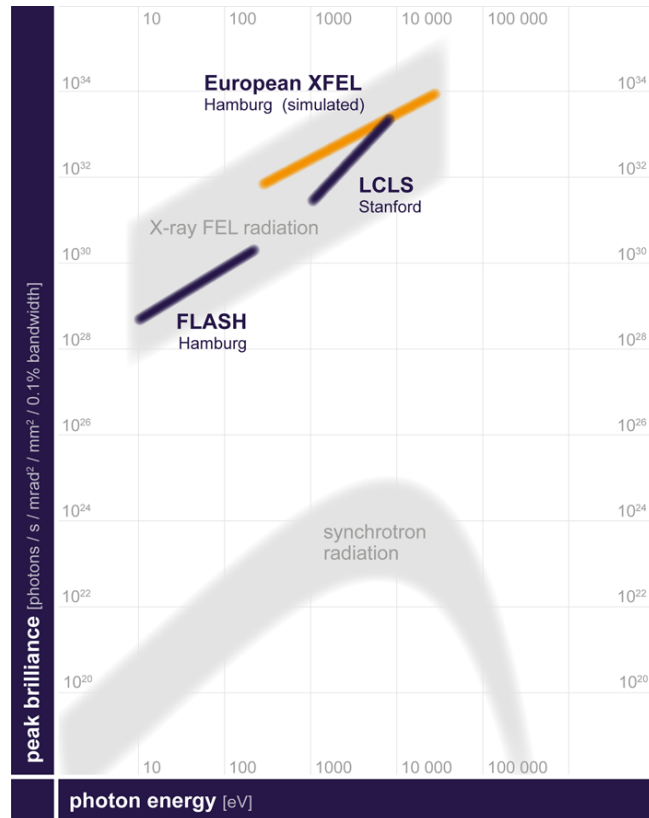
Schenefeld research campus on 14 August 2017

- The European XFEL is a new research facility that uses high-intensity X-ray light to study the structure of matter.
- User facility with more than 350 employees (+250 from DESY)
- Location: Hamburg and Schenefeld, Germany
- September 2017 start of user operation

General layout of the European XFEL



Free-electron lasers worldwide in comparison



- The peak brilliance of X-ray free-electron lasers exceeds that of the most modern synchrotron radiation sources by several orders of magnitude
- The European XFEL will be capable of generating more pulses per second and more intense X-rays than any other X-ray free-electron laser in the world.

About European XFEL



- Organized as a non-profit corporation in 2009 with the mission of design, construction, operation, and development of the free-electron laser
- Supported by 12 partner countries
- Germany (federal government, city-state of Hamburg, and state of Schleswig-Holstein) covers 57% of the costs; Russia contributes 26%; each of the other international shareholders 1–3%
- Total budget for construction (including commissioning)
 - 1.25 billion € at 2005 prices, about 117 M€ operating budget
 - 600 M€ contributed in cash, over 550 M€ as in-kind contributions (mainly manufacture of parts for the facility)

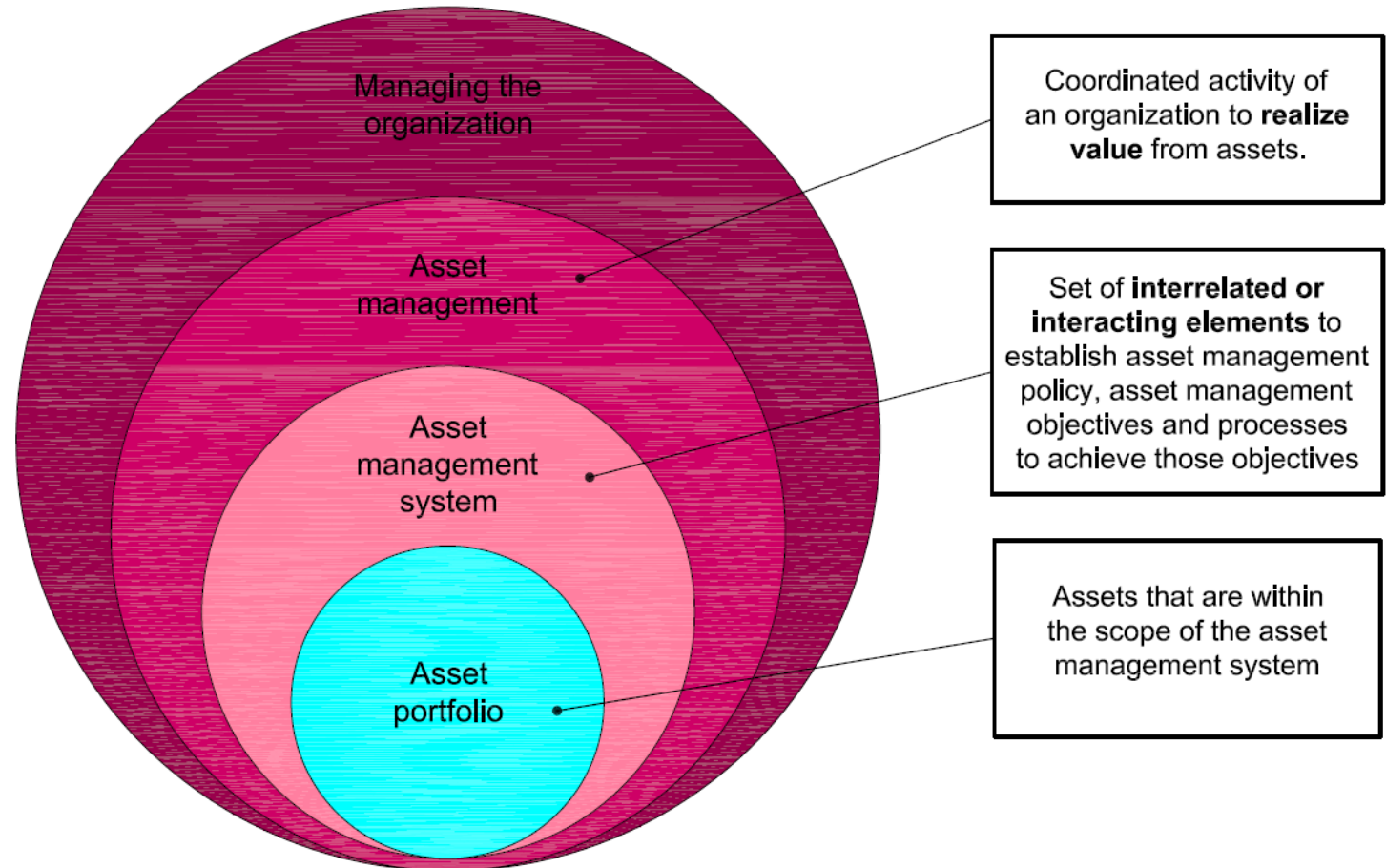
The ISO5500x Standards

Asset Management Definition (ISO55000)

- Asset Management is “the coordinated activity of an organization to realize value from assets”.
- An asset is defined as: "An asset is an item, thing or entity that has potential or actual value to an organization“.
- One view of working on the organizational objectives
- Make sure everything of value to the organization is properly managed in an efficient and goal targeting way
- systematic and integrated approach

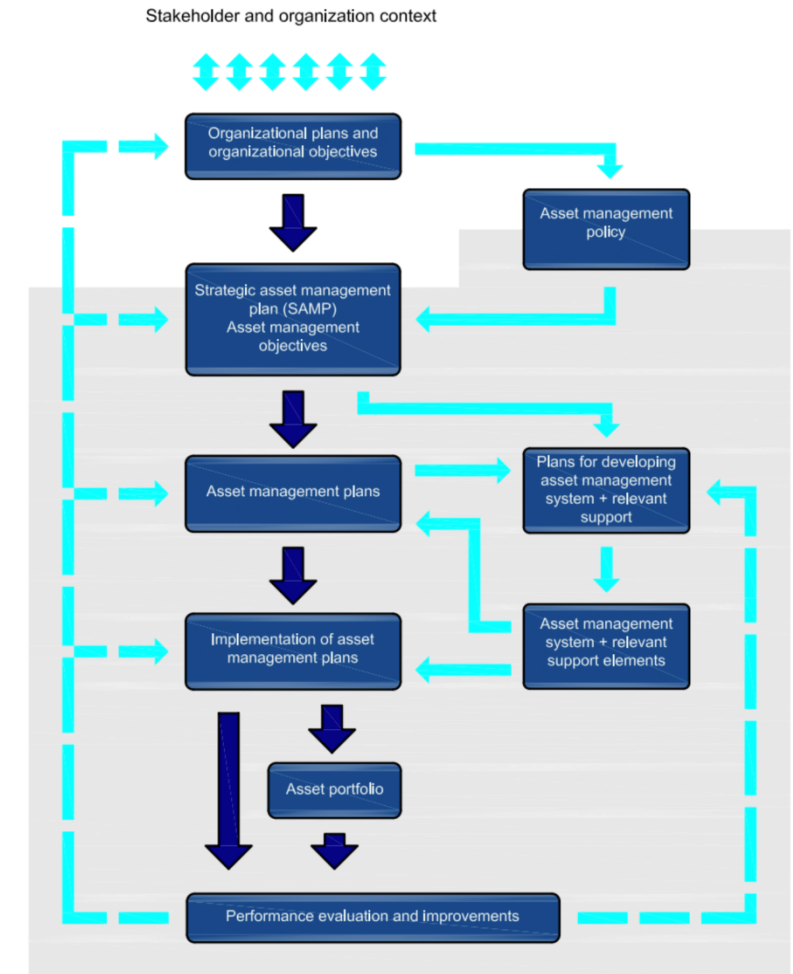
Asset Management System (ISO55000)

- Set of elements to establish the Asset management objectives and all processes to reach these objectives
- It is not one IT System



Relationship between key elements of an AM System

- ISO55000 AM System as a generic approach
- Connect the organizational goals with the operation and maintenance
 - → Line of sight
- Core elements are
 - AM Policy
 - SAMP (Strategic AM Plan)
 - AM Plans
 - Evaluation and improvement
- IT-Systems are used and implemented according to your organizational goals.



The grey highlighted box designates the boundary of the asset management system.

Asset Management at EuXFEL

Asset Management System, Policy and Strategy

- AM-System [AM]
 - „Set of processes and procedures which govern how Asset management is implemented“
 - Plan Do Check Act & Continual Improvement

- AM Policy [AM, MB]
 - Overarching Asset Management Principles
 - Framework for Implementation of the Asset Management
 - Meaning and targets of AM for EuXFEL

- AM Strategies [AM, Groups]
 - Objectives and Priorities in Asset Management
 - Criticality / Prioritisation
 - Time Scale
 - IT Systems, Information Management

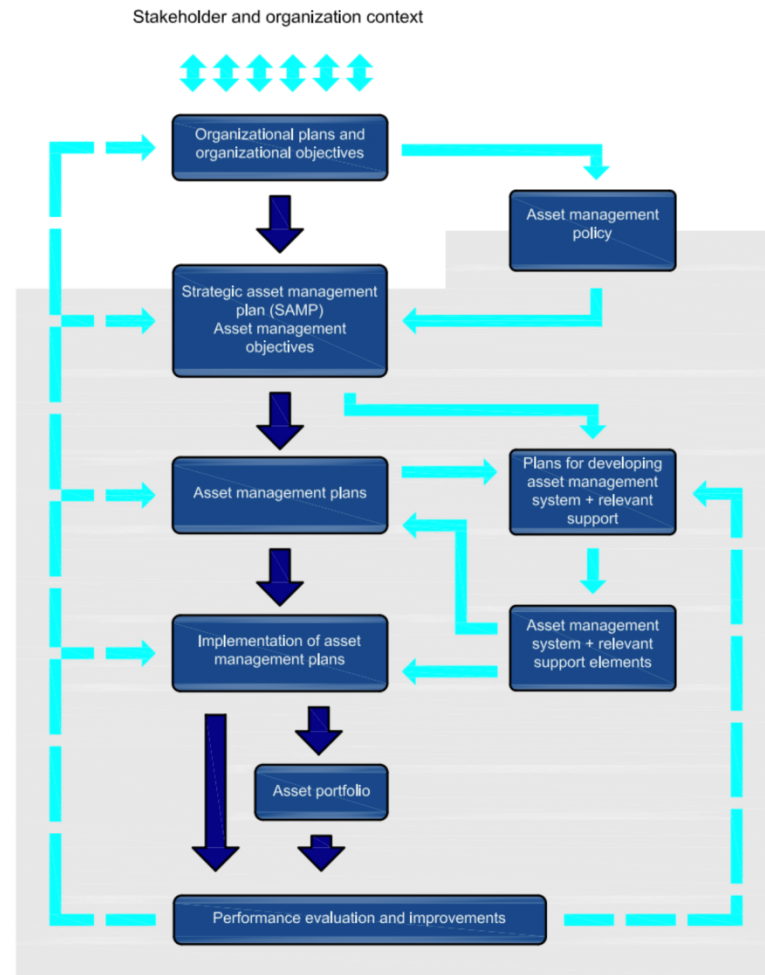
Asset Management – AM Tools and Maintenance Planning

- Managing & Overviewing the own Assets [Groups, AM, IT]
 - Items are identifiable
 - Items are locatable
 - Maintain Asset Data

- AM Plans [Groups, AM]
 - Resource Planning and Costs
 - Maintenance Planning and Risk Management
 - Work Volumes

- Find the right tools for the right purpose and let the groups do their jobs.

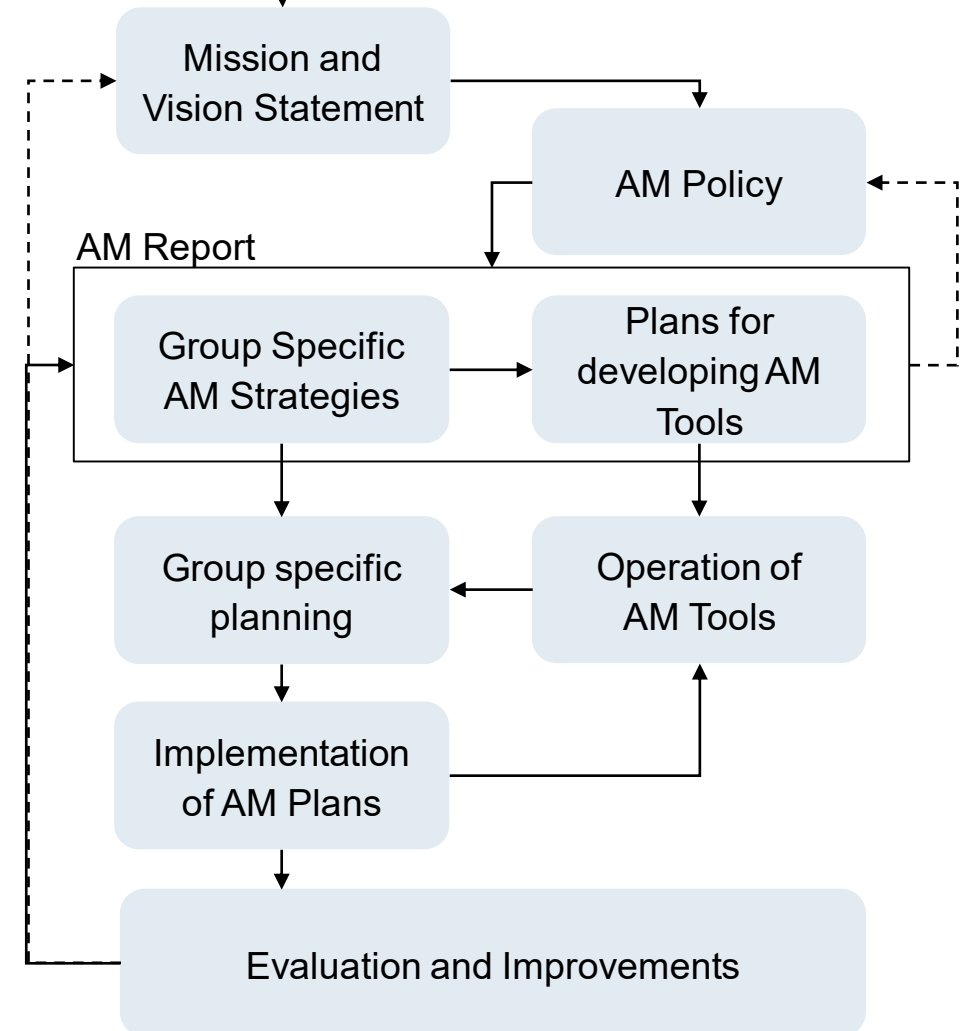
The AM System at EuXFEL



The grey highlighted box designates the boundary of the asset management system.

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Stakeholder & organization context



The AM Policy at EuXFEL - Summary

- An asset is everything of value to the EuXFEL. These are usually all items or entities that require a whole-life approach or that are more expensive than a threshold value given by law.
- Each group is responsible to inventory its own assets and enable localization and identification of its own parts of value.
- Each asset must be identifiable and locatable if this is requested by any involved party.
- The AM group is responsible to enable these goals through providing or recommending the required tools.

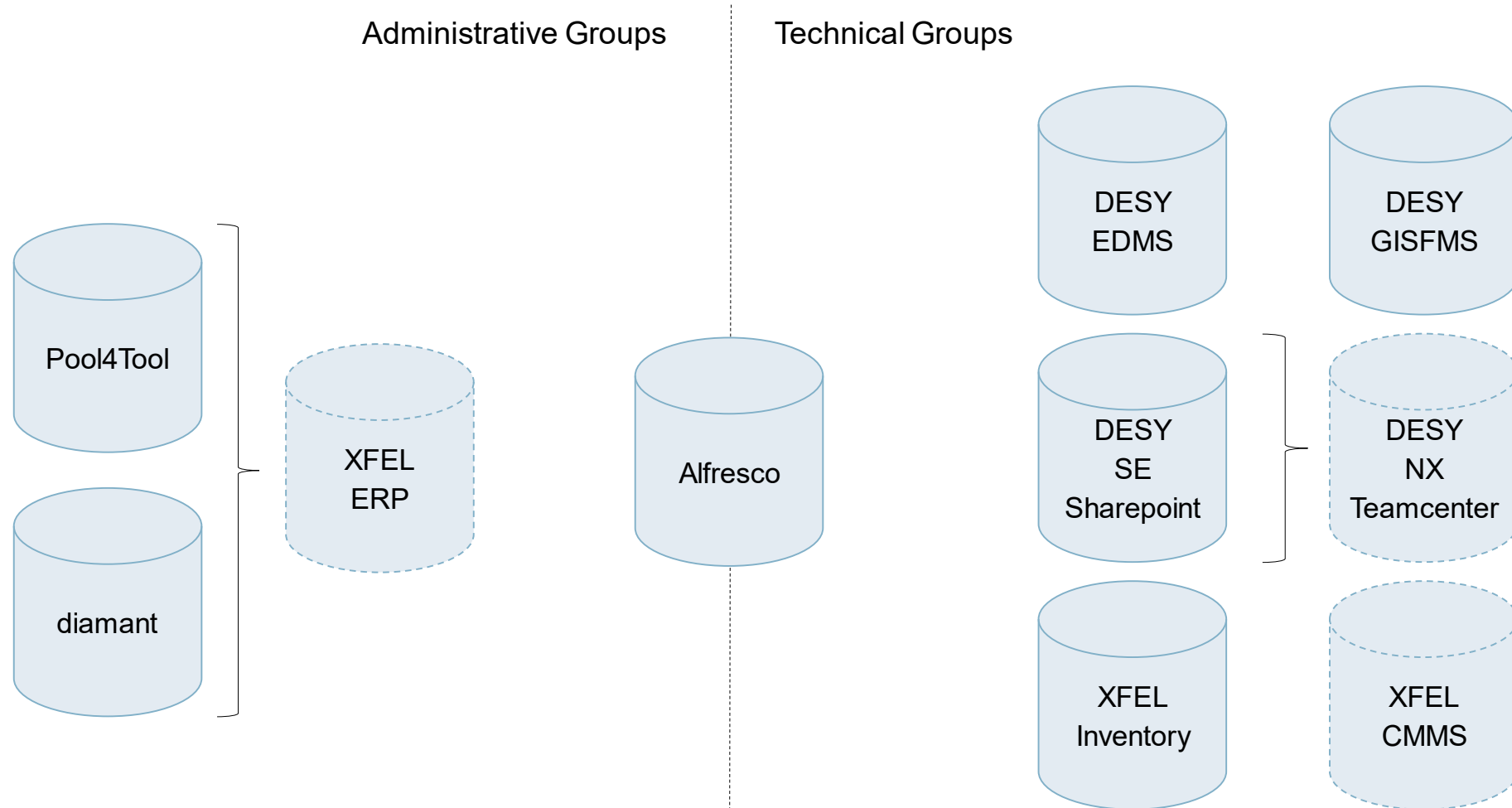
The AM Strategies – Group Specific AM Report

- A periodic AM Report was introduced in order to:
 - Define the role of every group in terms of AM
 - ▶ Scoping / responsibilities
 - In the report, every (asset owning) group defined its:
 - ▶ Assets
 - ▶ AM tools
 - ▶ Goals and timescale
 - ▶ Requirements
 - This builds a starting point for future AM efforts
 - XFEL-wide requirements analysis

Group	Group Leader	Asset Owner	Working Mode	Informed about the AM role	AM Strategy	Inventory trained group members	All Assets Managed
All 33 EuXFEL groups were evalutated (December 2017)		yes	<div><div></div></div>	2 completed	completed	completed	completed
		no	<div><div></div></div>	1 completed	-	-	-
		yes	<div><div></div></div>	2 completed	completed	working	working
		no	<div><div></div></div>	1 completed	-	-	-
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		yes	<div><div></div></div>	3 completed	completed	completed	working
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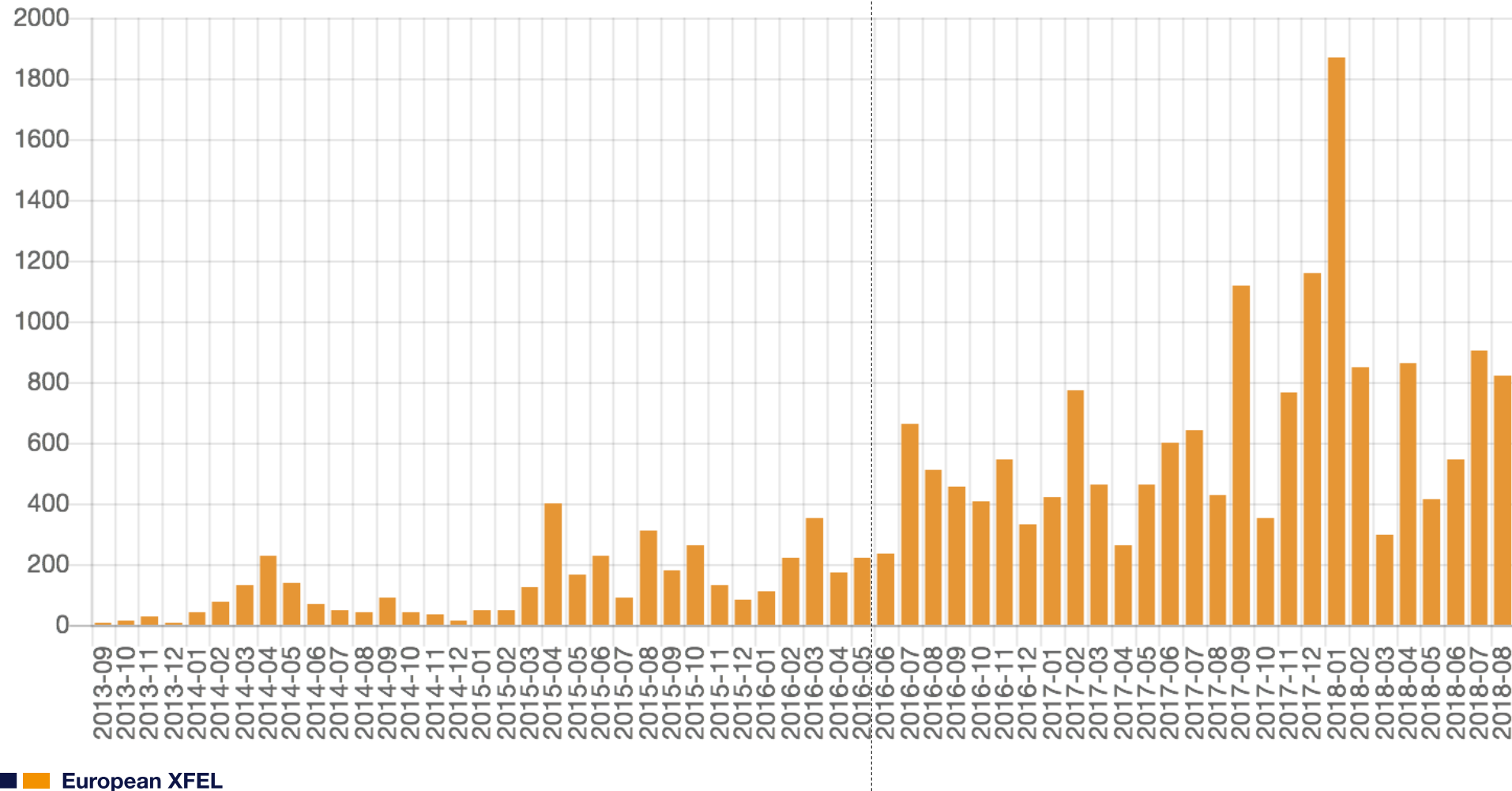
Working Mode	Meaning
1	AM is consulted upon request when the relevant groups become involved in managing assets.
2	Periodic review of a group-specific AM strategy.
3	Close collaboration because of high importance for AM.

Tools for Managing Assets at EuXFEL



XFEL Inventory Tool

Inventoried items per month



Learnings

- AM group introduction in 2016
- Groups / Responsible people manage their assets
 - If there is no framework given, solutions for operation and maintenance grow within the responsible groups.
 - More than 26 tools are supported by IT (not all for AM)
- Results of introducing AM 7 years after funding the organization
 - Broad landscape of tools
 - Time consuming meetings for coordination between groups
- The later you introduce a systematic AM the more time consuming a proper introduction will be.
- But: The AM Industry standards can help to achieve a systematic and coordinated AM.

Main benefits

- Independent from the tool, the AM system makes sure every activity is in "line of sight" with your organizational goals
- Systematic approach to find the areas with the highest need for action
- Fulfil compliance with legal obligations
 - German Commercial Law (§240 HGB) requires the detailed localization of all assets
 - Customs authorities strictly require the tracking of all customs relevant C13 goods
- Improve organizational effectiveness
 - Avoids double work
 - Improves conditions for operation and maintenance
 - Find overlooked resources
- Improve other disciplines (e.g. risk management)

Thank you for your attention

