Solid Design

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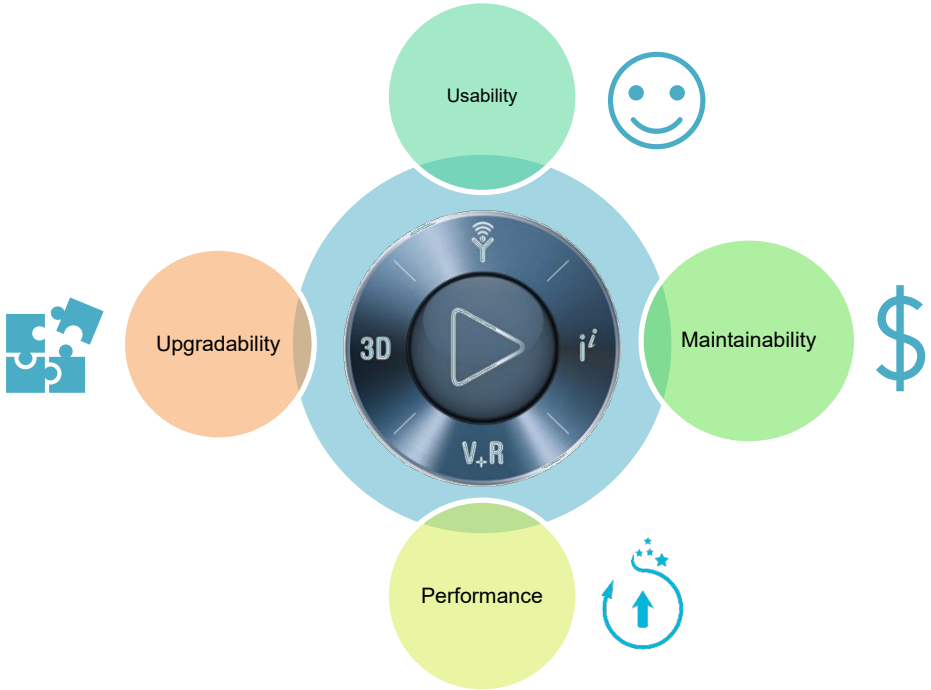
PLMIF
Innovation Forum

DIGITALIZATION FOR SUSTAINABLE PRODUCT DEVELOPMENT AND MANUFACTURE

Solid Design

Designing for usability, maintainability, performance & upgradability



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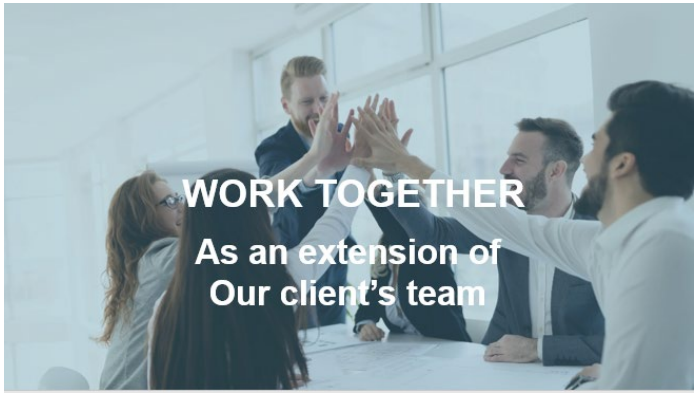
WHO delivers?



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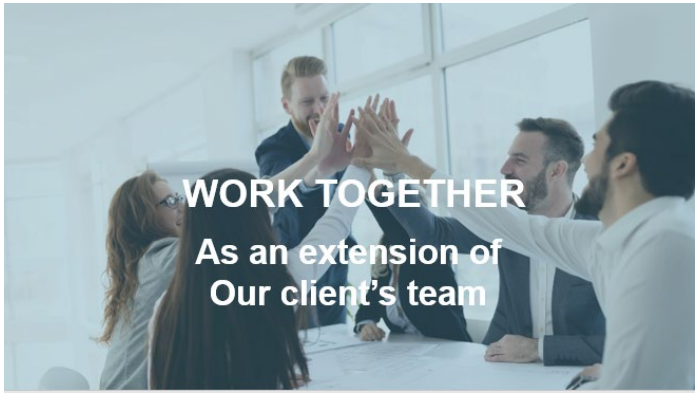
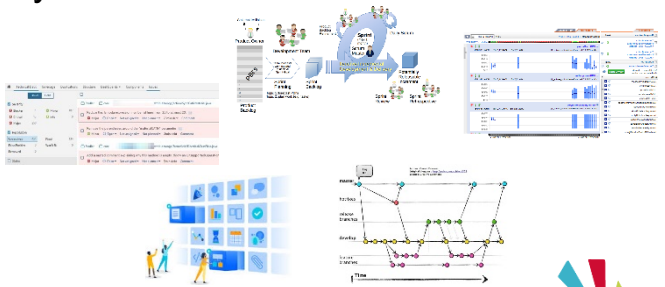
HOW deliver?



Using right and well proven tools:

- Agile way of working
- Development and collaboration
- Code management and analysis
- Automated Testing
- Schema installation
- Deployment
- System monitoring



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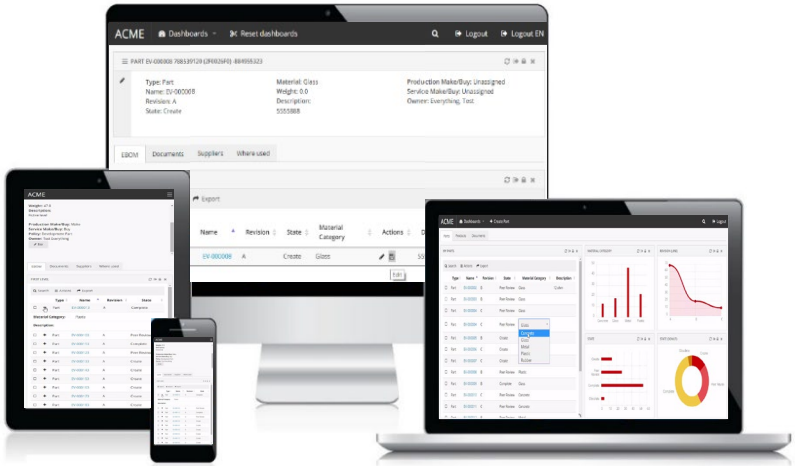
Usability

The official ISO 9241-11 definition of ***usability*** *is*: “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.”



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Usability

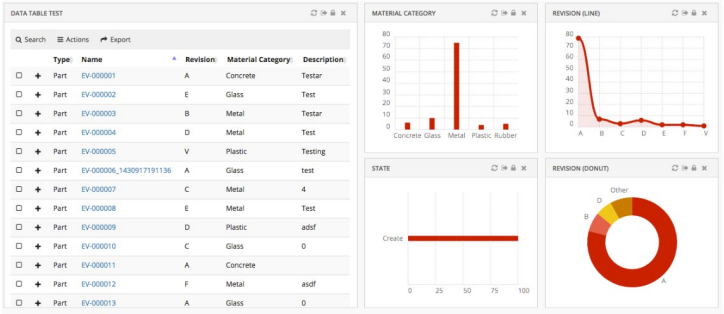
Common challenges

- Usefulness
  - Address the real needs
  - The information and functions provided should be relevant

- Consistency
  - Follow conventions existing in the platform (icons, naming of commands, etc)

- Simplicity
  - Keep the screen “clean”, avoid unnecessary or irrelevant functions
  - Keep the most commonly used information visible, additional information can be added by the user based on needs

- Efficiency
  - Make user’s work easier and faster
  - New way of working and thinking
  - New way of searching and displaying data



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Performance

According to ISO 9000:2015, ***Performance*** refers to a measurable result.

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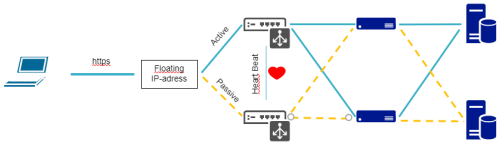
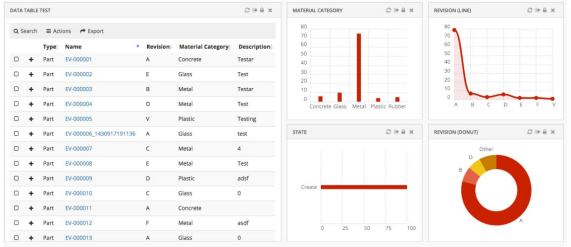
Performance

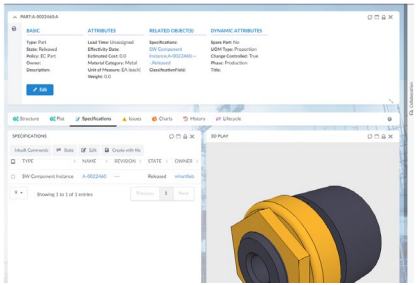
Common Challenges

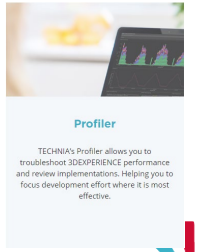
- Infrastructure
  - Follow hardware requirements and recommendations
  - Regular maintenance to prevent performance degradation
  - Network WAM/LAN



- Application Design
  - Unnecessary data
  - Consider different / best way of making data accessible for the users
  - Number of click to perform a single task
  - Access model
  - Search configuration
  - Caching of static content
  - Bad performing code
    - Number of call to database
    - Best code practices
    - Incorrect/Insufficient test data







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Maintainability

According to ISO 25010:2011, ***Maintainability*** represents the degree of effectiveness and efficiency with which a product or system can be modified by the intended maintainers.

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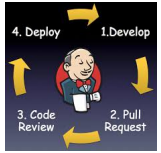
Maintainability

Common challenges

- High Code Complexity
  - Level of modularity
    - A simple function doing more than one operation
  - Code Spaghetti and Technical debt
    - High cost of ownership
    - High maintenance cost
    - Longer development time



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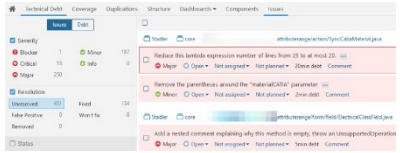
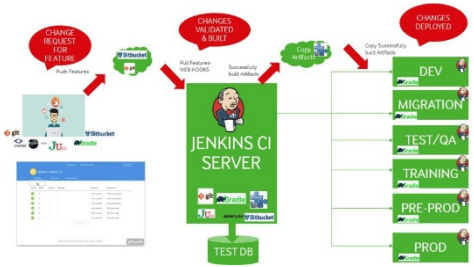


- Documentation
  - Low priority
  - Lack of time

- Configuration & Customizations
  - Impact of customizations in maintenance cost
  - Unnecessary functionality to maintain

- Delivery of designed solution
  - Inconsistency among environments
  - Human errors



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Upgradability

According to ISO 14021:2016, ***Upgradability*** refers to characteristic of a product that allows its modules or parts to be separately upgrade or replace without having to replace the entire product.

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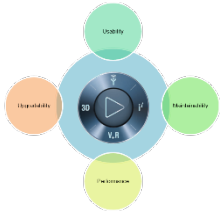
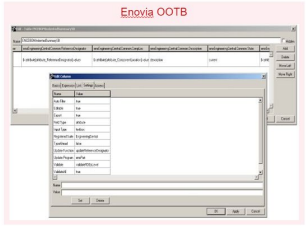
Upgradeability

Common challenges

- Reduce and keep track of customization
- Consider where and how to do customizations
  - Database
  - User Interface
  - Easy to introduce / maintain configurations
- Approval process for customization
- Extend OOTB data model when possible
  - Unified Typing available from R2014x
  - Use Schema Tool extensions to modified OOTB administrative objects
- Keep track of schema changes
  - Use best practice to differentiate customer specific business objects from OOTB
  - Use **Schema Tool** (part of Technia Value offering) to manage, handle and install the schemas





Data Model Customization

Schema Tool

```
<?xml version='1.0' encoding='UTF-8'?>
<extension>
    <menu>
        <name>{menu_type_SeasonalPlan}</name>
        <addItems>
            <menu>{menu_SomeMenu}</menu>
            <command>{command_ AOLineAssortment }</command>
        </addItems>
    </menu>
</extension>
```

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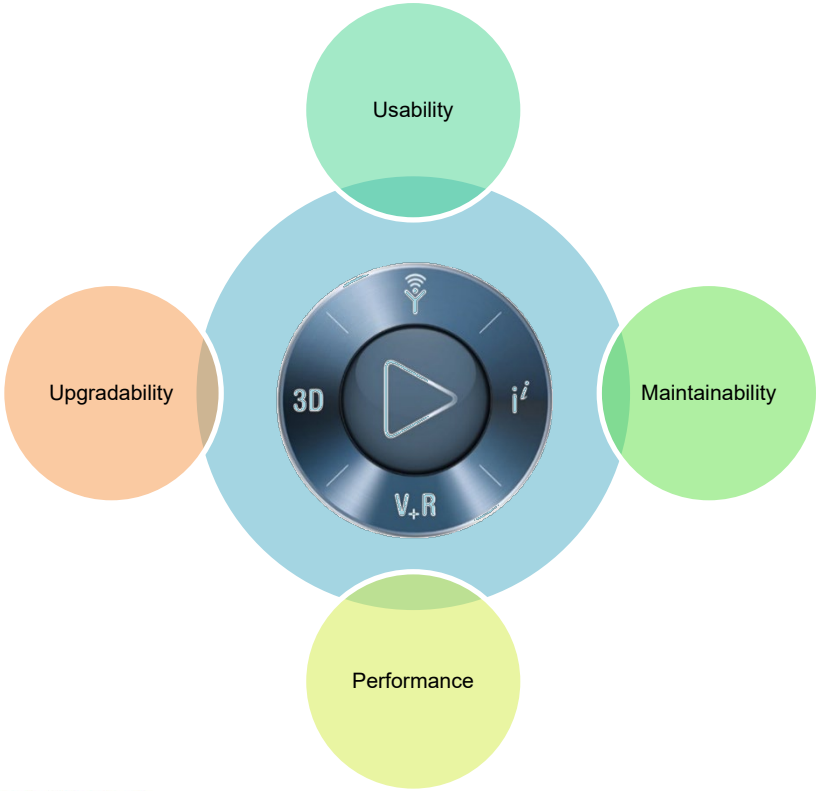
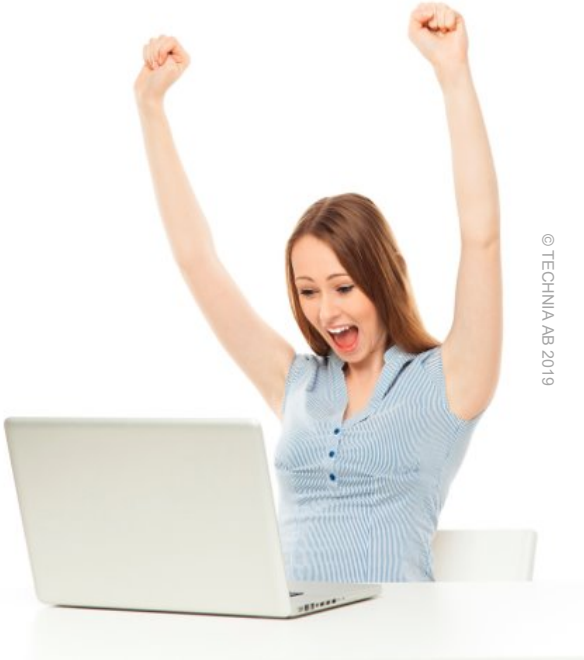
Summary





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Q & A

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