XperiDesk®

Process Development Execution System (PDES)

The purpose of a **Process Development Execution System (PDES)** is to manage and support the execution of development activities for high-tech manufacturing processes.

A simplistic relational perspective is that a PDES is to the development of high-tech manufacturing processes what a Manufacturing Execution System (MES) is to the execution of volume production processes. The significant difference between the two systems is that the emphasis of the PDES toolset is to deliver enormous flexibility and experimentation freedom in a low volume environment, while the tools of a MES focus on less variance, tighter controls, and logistics in a high volume environment.

The similarities in purpose of a PDES and MES are the traditional common-ground objectives of increasing traceability, productivity, and quality. With a PDES, the expectation and objective is to increase the quality of the developed manufacturing process, which is somewhat in contrast to the objective of improving production quality with a MES.

Structuring the Art of Process Development

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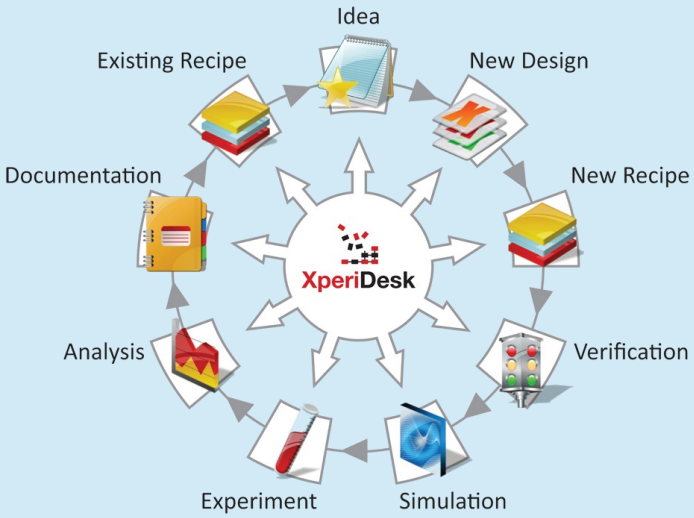
XperiDesk®

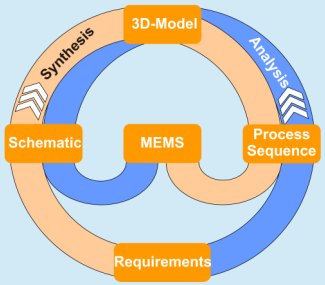
Expedite your Development



XperiDesk®

The **XperiDesk** software suite is a leading edge, comprehensive application for the development of complex manufacturing processes in the semiconductor and thin-film MEMS device market. Indeed, it is comprehensive! It supports process step and process flow development with innovative tools. One example are the customizable rules to validate the compatibility and completeness requirements of process steps that increase efficiency and integrity from the early concept stage to the final ramp-up.

However, the power of **XperiDesk** is even more apparent in its tools that provide solutions (yes, solutions) for non-technical challenges. These might be internal and external collaboration, documentation management and technology transfers, all of which ease time-to-market pressures by truly expediting the development process. As for subsequent developments, each one is progressively expedited by the fact that **XperiDesk** provides complete reuse of data and documentation from a previous development.



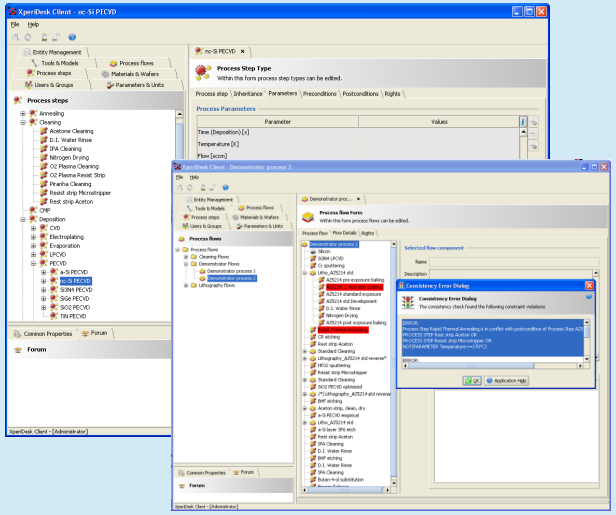
A significant innovative feature verifies the manufacturability of a recipe before a live test. This is achieved by using simple and complex customizable rules to determine if the test could fail and/or damage equipment. An open interface to integrate external simulation software enables efficient structural assessments of designed devices. A robust tracking system supports the management of all instances of your experimental verification and iteration improvements.

From the conceptual development design process through each process flow recipe iteration, **XperiDesk** compresses collaboration time to expedite your overall development process to ramp-up and reduce costs. A feature that provides selective, mechanized, data exchange to all collaborating partners achieves this. **XperiDesk** not only solves the challenges of the ongoing increase in distributed global development teams, it makes the degree of distributed collaboration transparent. A user/role security model, specifically designed for IPR protection on a single item level, manages the distinct demarcations of various collaborations.

Seize the competitive edge with XperiDesk – now!

Key benefits and features:

- Reuse of all knowledge and data in subsequent developments
- Automatic collection and maintenance of process related files from various sources, including an API for selected expansion of experiment data
- Virtual prototyping via an open interface to simulation and visualization software
- Verify the manufacturability of a recipe before a live test to prevent equipment damage
- Data management for process flows, process steps, mask sets, simulation and emulation models, formulas, materials, parameters and scientific units
- Navigation and retrieval of data via multiple criteria searches, filters and views
- Relate each data set to any other entity, e.g. link experiments, lots, wafers, and build graphic structures of relations for links to view results from multiple perspectives
- Access result files from any client (results are managed in the context of the flow)
- Leverage existing TCAD-simulation tools without manually generating input decks
- Neutralize the challenges posed by distributive collaboration
- Selective export and import of data via XML
- Exchange data with Manufacturing Execution Systems (MES)
- Mitigate the impacts of engineer turnover



Modules of XperiDesk®:

XperiDesign supports the early concept stages of the process flow design. It manages the data, information, and knowledge collected in the design phase ranging from conversion of values in different units to the management of entire process flows. The power of this module is cyclically regenerated and increased by the application's reuse of the previous process flow design. Design entities can be arranged in multiple hierarchies and categories. Sophisticated inheritance mechanisms permit the propagation of design properties and data for each entity throughout the entire hierarchy structure, complemented by a search engine that does not require knowledge of the structure of data.

XperiFication provides a two-tiered virtual assessment of newly created or modified process flow recipes. The first tier level assesses the manufacturability of a recipe via a consistency checking engine that uses customizable rules to evaluate the compatibility requirements of process steps. The second tier level provides assessment via a combination of an open interface to leverage existing TCAD-simulation tools and an interface for Java Interpreter calculation models. **XperiFication** archives result files in the underlying document management system, and the result files are accessible from any client, since they are managed in the context of the flow.

XperiLink's tracking features support the critical function of experimental verification. It automatically collects files, automatically loads data from the file system, and provides navigation and retrieval of data via multiple criteria searches, filters and views. The loaded data can have infinite levels of detail to manage parameters, etc., with the added benefit of viewing results from multiple perspectives.

XperiShare provides the selective, mechanized exchange of development data between different partners to expedite and improve the efficiency of collaboration. Selective export and import functionality allows the bundling of IP packages and the transfer of various simulation and experimental verification results. **XperiShare** increases your collaboration efficiency to achieve an expedited fabrication ramp-up.