



Corporate management system
for a project organization
and information
modeling processes



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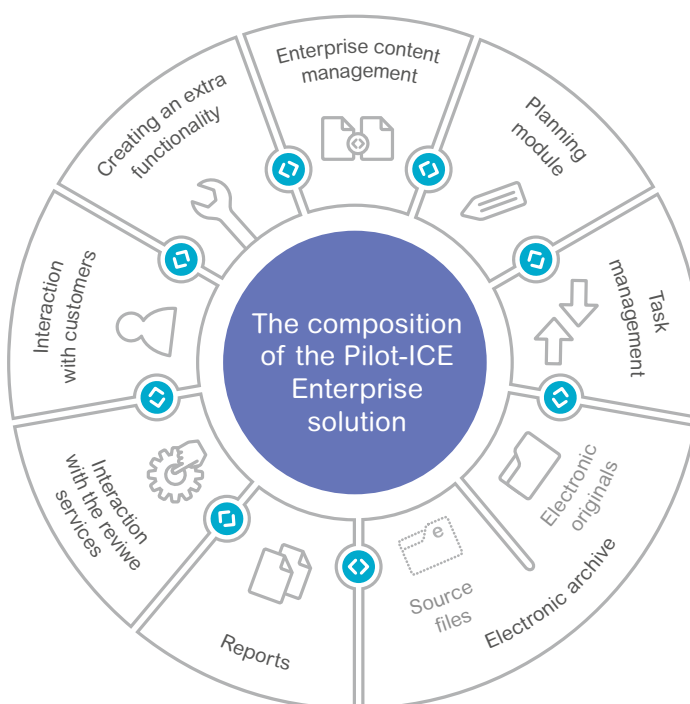
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General information about the Pilot-ICE Enterprise system

Pilot-ICE Enterprise is a corporate management system for a project organization and information modeling processes. It automates the company work for the following tasks:

- Enterprise content management;
- Planning;
- Management for the performance discipline;
- Organization of teamwork when creating a design of the project;
- Coordination of documents within the enterprise;
- Management of corporate content of the project organization;
- Interaction with contractors and customers;
- Interaction with the review services;
- Data analysis (Reports, geometrical search).

Composition of the solution



Solved tasks by types of system users

Tasks	Проектная организация	Служба заказчика	Служба эксплуатации	Подрядная организация
Management of the development, storage, coordination of project documentation (PD)	✓	✓		
Automatic input control of PD (checking the changes made to the set and contents of PD)	✓	✓		✓
Formation of a set of PD for transfer to inspection	✓	✓		
Formation of customer service conclusions		✓		
Elimination of collisions due to work with irrelevant documentation in the design, construction, repair, and operation	✓	✓	✓	✓
Reducing the timing of projects at all stages of the life cycle	✓	✓	✓	✓

Enterprise content management

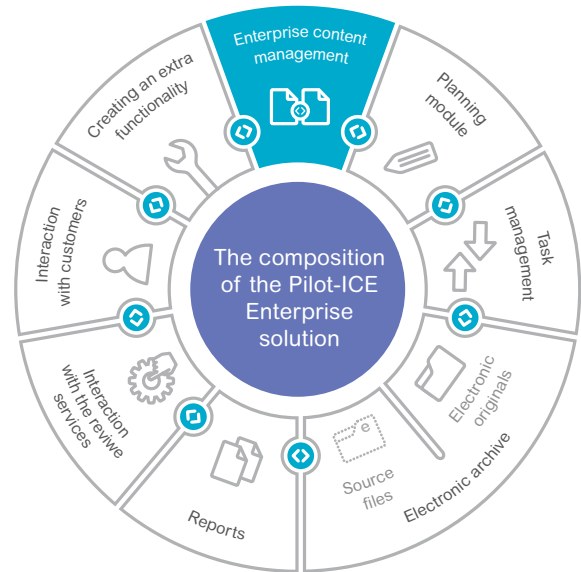
Enterprise content management in Pilot-ICE allows you to automate the following business processes of document flow in the company:

- Management of incoming documents;
- Management of outgoing documents;
- Management of internal memos;
- Search and management of orders;
- Evaluation of the internal cost of the project;
- Conclusion of the contract;
- Planning of the project;
- Project release;
- Familiarization with the document.

During the operation with different types of information, a single information space of the company is formed.

Functionality, providing the possibility of managing the managerial workflow:

- Task management;
- Electronic archive;



- Harmonization of electronic documents;
- Progress reporting;
- Integration with any email client;
- Auto-publishing of documents from editable files;
- Integration with MS Word;
- Presence of a separate Pilot-ECM client.

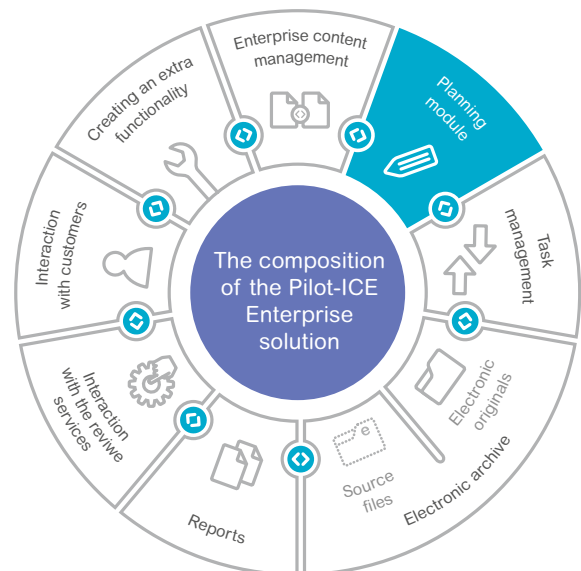
Planning module

The project planning and management module Rubius Project Manager is designed to solve management problems in the project organizations.

The RPM module runs inside the Pilot-ICE system. This integrity ensures better controllability of the project organization because the plans and the result of the project activity are inextricably linked.

Features of the planning module:

- A quick analysis of the entire project activity of the organization using the Kanban method (Manager's desk);
- Maintenance of calendars for the entire enterprise, structural divisions, and employees; the determination of working and non-working days, the number of working hours per day, the temporary change in the working schedule;
- Ability to maintain a calendar for each plan (project), which indicates the extent to which the workforce (employees and units) is involved in the project;
- Decomposition of works under the plan (project): determination of the composition, sequence, and interrelations of the operations;



- Evaluation of labor intensity and duration of work under the plan (project);
 - Scheduling, construction of a Gant Chart;
 - Maintenance of payment history for the project;
 - Assignment of access rights to any work of the current plan for organizing planning through the chain «project manager – planning department – department head – team leader – performer»;
 - Evaluation of the critical path – the sequence of work,
- changing the duration of which determines the deadline for completion of work under the plan (project);
 - Revision of the planned load of labor resources (units and employees) on the schedule, indicating the involvement in the plans (projects);
 - Formation of reports on projects and tasks;
 - Printing of the decomposition structure of works and the Gant Chart;
 - Task assignment for planning and performing tasks;

CPE

Creating a plan for the project, transferring the plan to the head of the department



Head of Department

Decomposition of works before the task assignment to performers, teamwork on the plan, scheduling, appointment of planned work completion time



Planning module



Project designers

Work on tasks, completion report, actual deadlines for completion



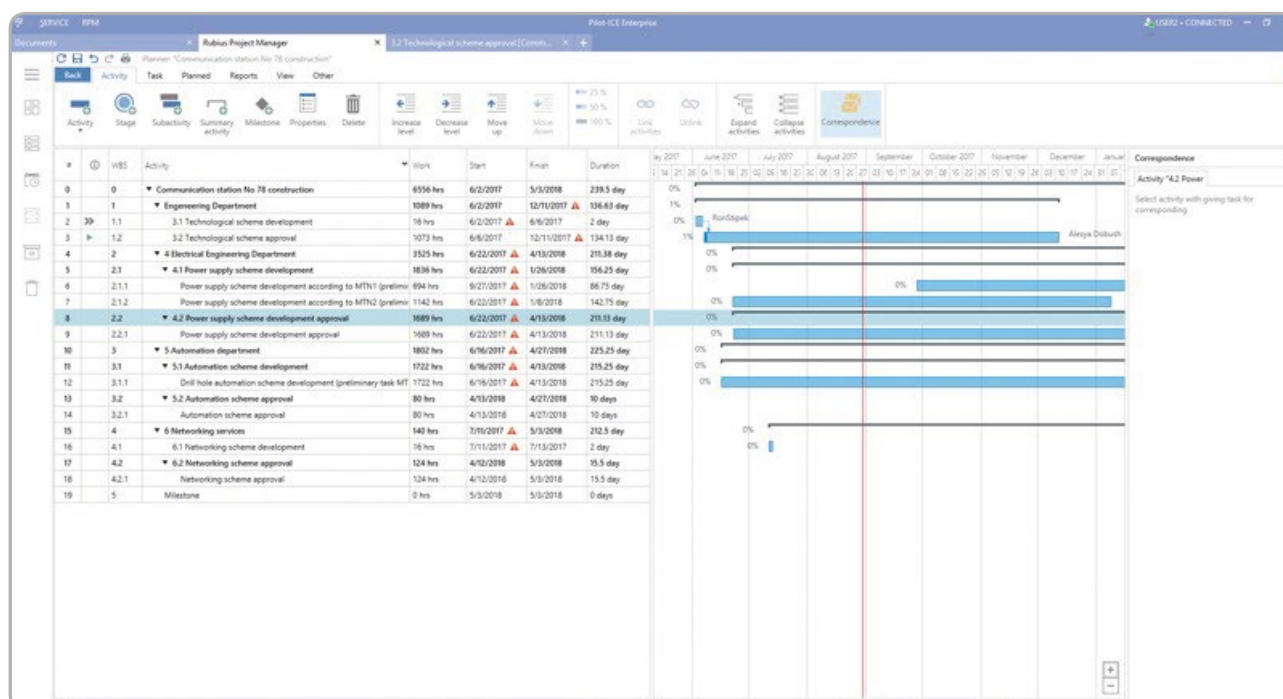
CPE

Project cost planning
Timekeeping report
Analysis of information on the implementation of projects for a period of time



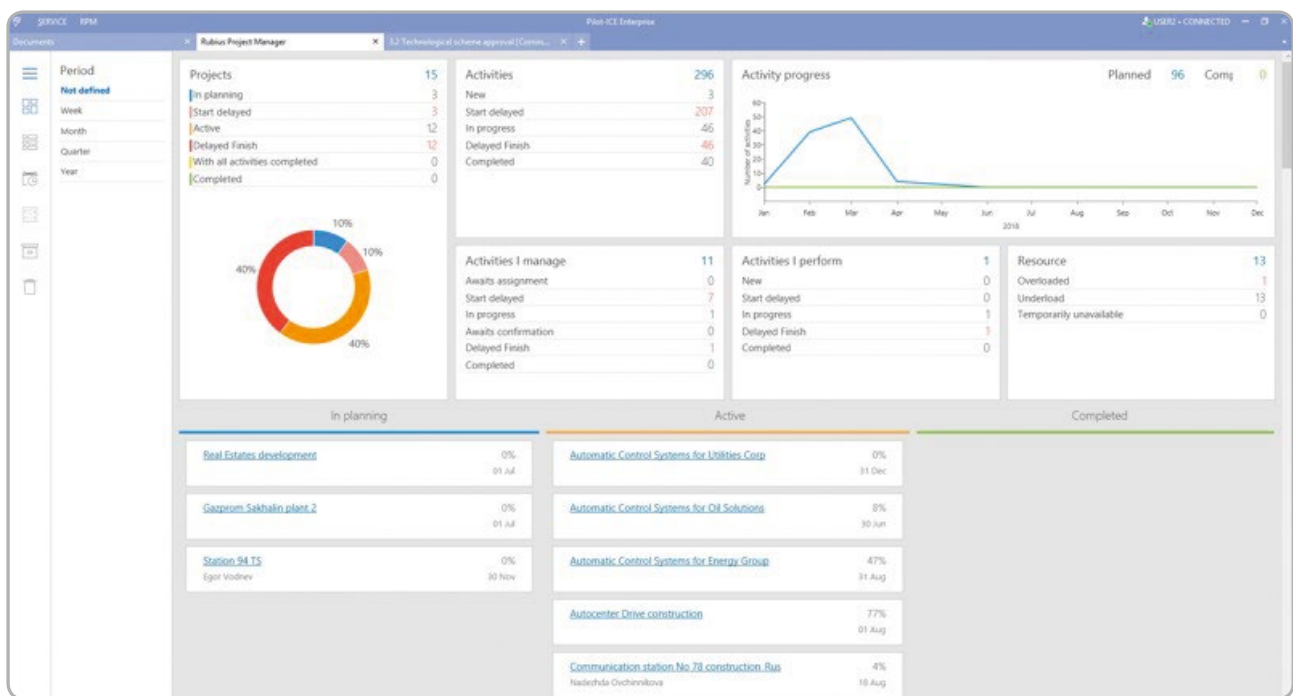
Head of Department

Variance analysis and plan revision



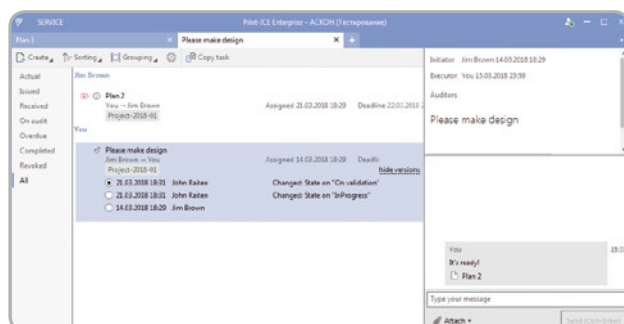
Working with the plan

- Work progress tracking on related tasks or by registering subtotals in the work plan;
- Possibility to view the progress of the task from the plan, including attachments and correspondence on the task;
- Recording of labor costs when working with tasks («Performer's workplace» module);
- Conducting correspondence on the project and specific task, notifications of new messages;
- Tracking the workload of performers for various tasks and projects;
- Export data to MS Project, MS Word, MS Excel; import plans from MS Project;
- Possibility to maintain a reference book of key jobs, indicating labor-intensity standards, «default» resources, «default» access rights;
- Possibility to create plans for pre-formed templates;
- Ability to create a plan on the «basis» of another plan (copying the structure, tables of planned labor and related resources);
- Creation of embedded plans: a possibility of creating plans for certain types of work with the subsequent inclusion of them in the «top-level» plan;
- Creation of base plans for variance analysis;
- Identification of financial and time risks of the project on the basis of the earned value technique.

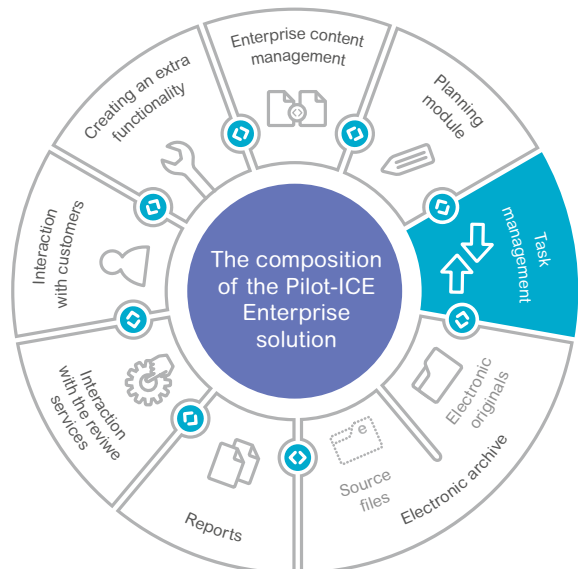


Desktop

Task management



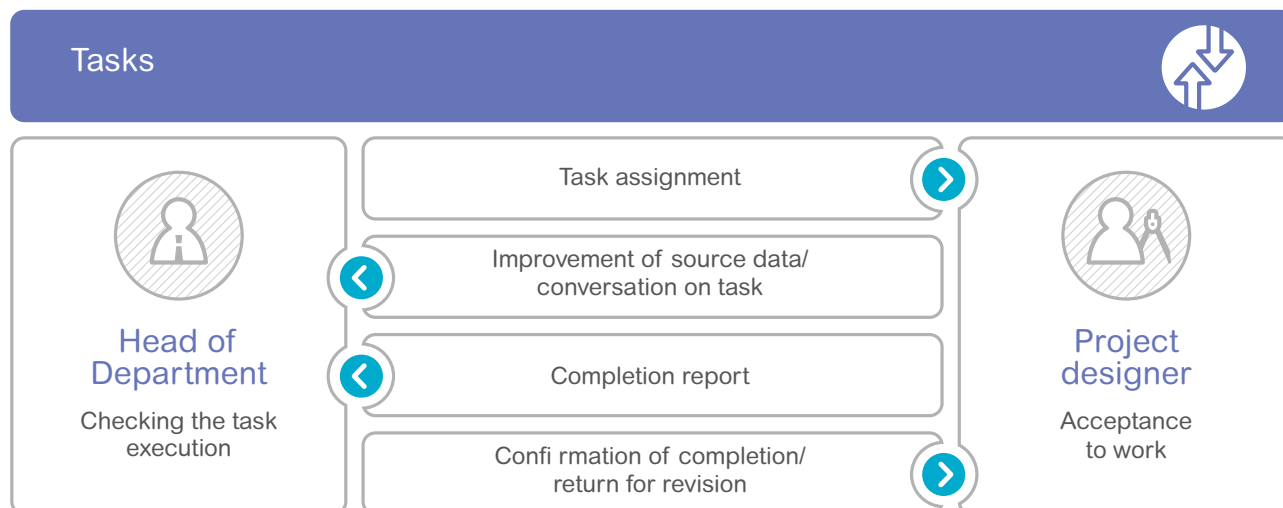
Operation with tasks



The operational management of the project design in Pilot-ICE is implemented through the tools for task assignment and monitoring their execution. Task operation is implemented as simply and conveniently: user tasks are similar to e-mails in the common mail client, but at the same time allow you to control the timing and quality of work. In the context menu of the task, the user can register the current stage of the work performed. In «Conversation» tab, the performer can initiate a dialogue with the initiator in the chat mode or place links to the results of works (source files or documents).

Features provided by Pilot-ICE:

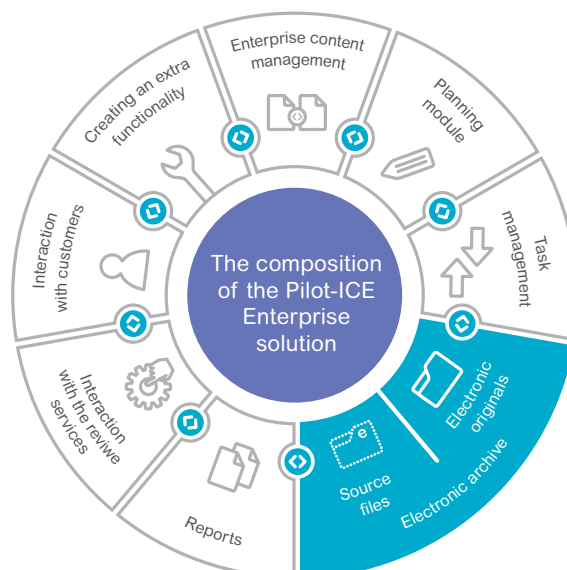
- Operational management of design processes through the issuance and control of the task execution;
- Creation of tasks and approvals for templates;
- Harmonization of documents submitted electronically: parallel, serial or serial-parallel – with the possibility of division into stages;
- Familiarization of users with files and documents;
- Providing project participants with internal means of communication that allow them to correspond in the «live discussion» mode, share links to documents and source files;
- Track the life cycle of each task in the following stages: «issued» – «in work» – «the work is completed, is on a check with the initiator» – «done»;
- Possibility to issue tasks to the department, the executor is appointed by the head of the unit;
- Adding auditors to track the task progress.



Electronic archive

The entire life cycle of a document in the system can be divided into 3 stages:

- Creation (teamwork with drawing/model files)
- Harmonization of electronic documents
- Long-term storage

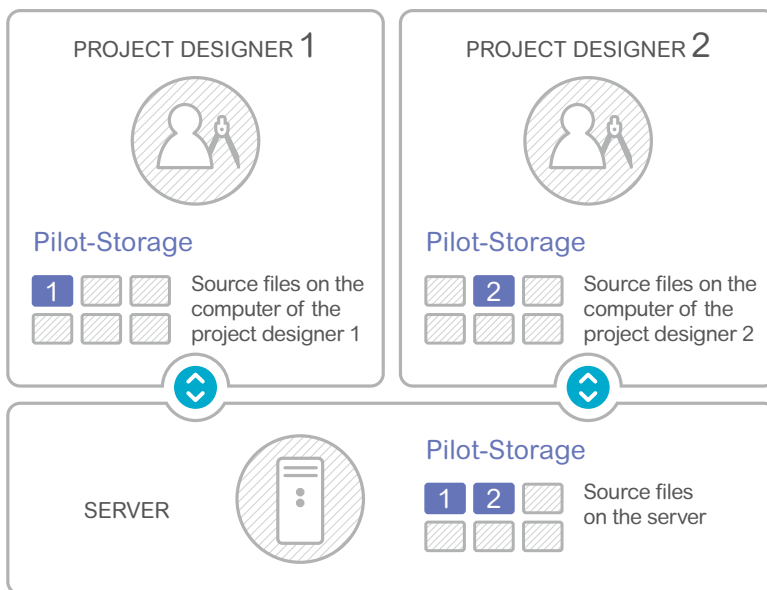


Creation (teamwork with drawing/ model files)

To work with editable files of different formats, the user has a Pilot-Storage virtual disk, which ensures:

- Centralized data storage, structuring for projects and other types of production activities (orders, instructions, memos, etc.);
- Access rights differentiation to files for convenient organization of teamwork and minimizing the risk of loss or corruption of files by other employees;
- Automatic locking of files when opening them in the tool from Pilot-Storage;
- Preservation of the referential integrity of project files for the organization of work on end-to-end design technology;
- File-version control, automatic record of the date, time and name of the user who created the version;
- Subscription for changes: possibility to receive notifications of new versions of files that are of interest to the user;
- Automatic binding of files to electronic documents received from them;
- Integration with software (for example, Autodesk Revit, AutoCAD, KOMPAS, MS Word, etc.).

Operation with source files



- Operation with source files of drawings and models
- Secure teamwork modification
- Locking of files against modifications
- Notification other users about a file modification
- Rollback to any file version
- Storage of all files on the server
- Off-line operation (without connection to the server)

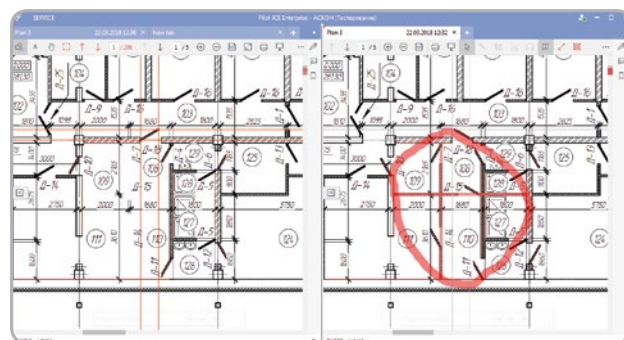
Harmonization of electronic documents

The system allows you to create fixed-layout documents of various formats (.pdf, .xps, images, text, drawings).

Working with an electronic document is:

- Creation of free format electronic documents from source files, further work with which it does not depend on the presence on users' computers of computeraided
- design (CAD) systems and other specialized development tools;
- Harmonization and approval of electronic documents using an electronic signature;
- Creation of a multipage document (for example, explanatory notes) from different documents;
- Setting the facsimile signature on the document when signing it with an electronic signature;
- Annotating of electronic documents: binding of notes, maintaining a registry of comments, maintaining correspondence by the comment;

- Preservation of the legal value of electronic documents when unloading them from the system (saving electronic signatures, the ability to work with documents outside the Pilot-ICE);
- Version control of electronic documents, saving of registration data for each version (authorship, date and time of publication, etc.);
- Comparison of the versions of the electronic document and displaying comments for each version, automatic detection of differences in documents containing text and vector graphics;
- Tools for measuring the area and length in the document;
- Subscription for changes: You can receive notifications if changes have been made to the objects of interest to the user (documents were deleted, added, or appeared new versions in the project or section);
- Search for documents and other database objects for any combination of attributes, including if the attributes are connected by the logical conditions «AND», «OR», «NOT», etc.;



Comparison of document versions

- Saving search algorithms for reuse and creating dynamically updated selections of database objects (Smart folders);
- Protecting electronic documents and source files from irretrievable deletion: placing the deleted objects in the trash bin that can only be cleared by the system administrator.

* XML Paper Specification © Microsoft (XPS) is supported at the level of the operating system, free of charge for signing the EDS and annotating

Long-term storage

The electronic archive provides:

- Legally valid electronic document flow (using a qualified EDS in accordance with Federal Law No. 63-FZ, for internal use and interaction with counterparties);
- Centralized storage of electronic documents, structuring on projects and other types of production activities (orders, instructions, memos, etc.);
- Providing quick access to data from mobile devices via a web-client;
- Project structure generation in accordance with the requirements of GOST R 21.1101-2013 and Resolution of the Government of the Russian Federation No. 87 (if necessary, the project structure may be adjusted);
- Creation of a structure for storing electronic documents and files based on templates or previous projects with a transfer of assigned access rights;
- An exception of changes to projects/ documents/files, regardless of access rights, for example, after they have been harmonized;
- Applying a QR code, a barcode for searching electronic documents by scanning paper copies.



Electronic archive:

- to search for a prototype
- for data analysis



full project information
(electronic originals, source files)



legally valid electronic document flow
(eliminating the use of paper documents)



search for information on the database:
geometrical, full-text, attribute



long-term storage of documents

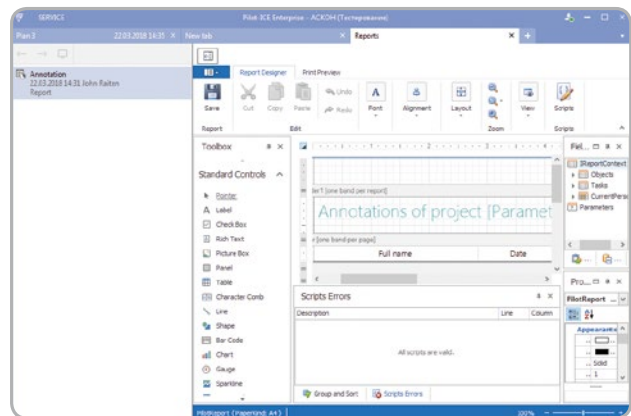
Reporting

Using the Pilot-ICE program, you can:

- Generate the management reports on data from the Pilot-ICE using a set of basic reports;
- Modify reports and creating custom forms using the built-in report designer;
- Present information in the form of diagrams, charts, tables
- Preset types of parameters for selecting values, their use does not require writing scripts.

Set of basic reports:

- Fulfillment of the orders for the unit
- Fulfillment of the orders for the enterprise
- Report on the current tasks of the employee
- Control over the signing of project documents
- Comments on the project
- Project document page formats
- Structure of the operating documentation

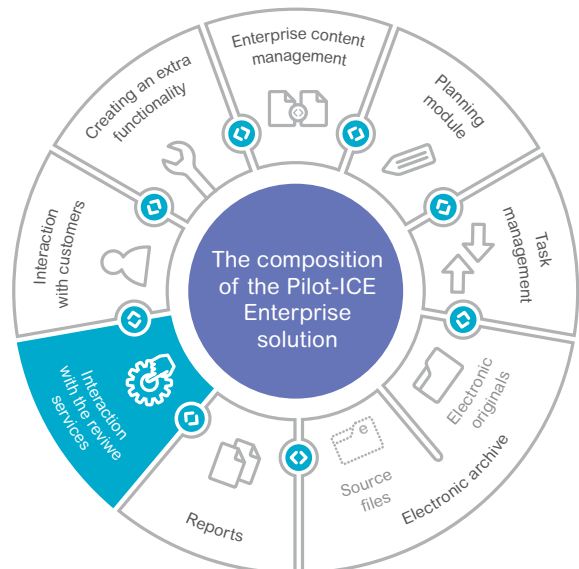


Annotations of project



Interaction with the review services

The system provides the formation of documentation for delivery to the review services in electronic form. The set of documentation meets the requirements set by the order of the Ministry of Construction, Housing and Utilities of the Russian Federation (Minstroy RF) dd. May 12, 2017, No. 783/pr «On approval of the requirements for the format of electronic documents to be submitted for state expertise of project documentation and/or results in engineering surveys and verification of the reliability of determining the estimated cost of construction, reconstruction, an overhaul of capital construction projects.»



Features provided by Pilot-ICE:

- Providing the storage and export of documentation in folders:
 - Project documentation;
 - Results of engineering surveys;
 - Initial permissive documentation;
 - Cost estimate documentation;
- Generation, coordination, storage, and export of electronic documents (text that can be copied);

- Export of documents in the format accepted by the review service*;
- Generation, coordination, storage, and export of information-certification sheet;
- Generating explanatory notes from documents stored in the system;
- Forming bookmarks for the table of contents and a list of tables and figures contained in the document.

* Solved by third-party components

Interaction with counterparties

Enterprises can work with counterparties in a single database or exchange documentation packages.

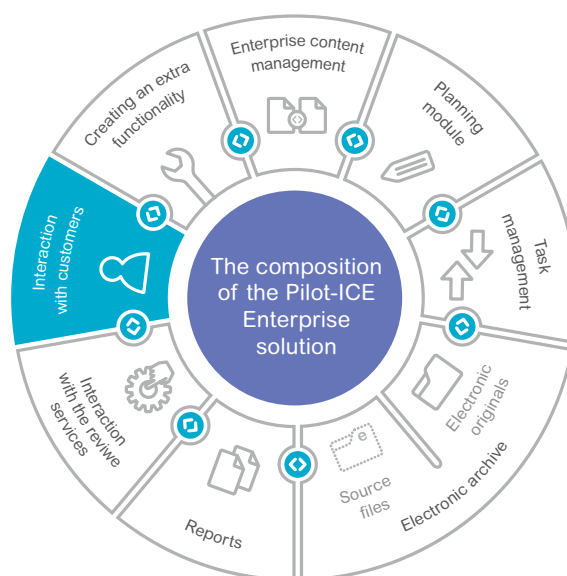
Pilot-ICE allows you to:

- Export/import of documentation between counterparties or several holding companies;

Thanks to this function it will be much more convenient to transfer to the customer a complete set of project documentation and carry out legally significant electronic document flow using electronic originals and electronic signatures.

In the event that only one of the two parties is using the system, the other can view the documents in the Windows viewer or the specialized free distributed Pilot-XPS.

- Batch uploading of documents from the Pilot-ICE project, navigating the structure of the uploaded project using a standard Internet browser (Internet Explorer, etc.);
- Batch download of documents uploaded from another Pilot-ICE database, preserving all attributes and comments to documents;



An interaction between a project organization and a counterparty



Project organization

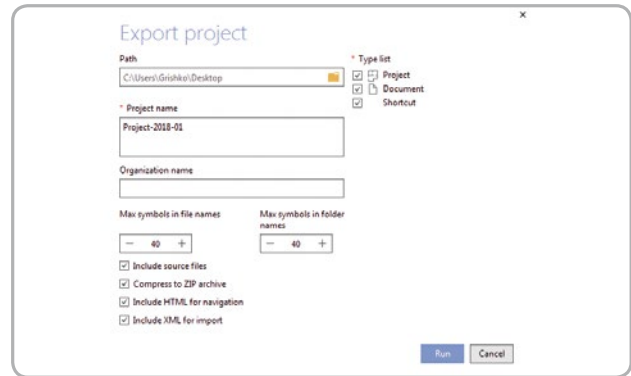
- Develops documentation
- Conducts internal coordination and signing of documentation
- Uploads the documentation (with preservation of the structure, links between the documents and source files and access rights)



Counterparty (contractor, customer and maintenance services)

- Downloads documentation to the database (incoming control of the documentation for changes in documents, comments, new documents)
- Conducts the harmonization of documents
- Sign the EDS
- Returns to the project organization

- Input control of the documentation (automatic control of changes with a repeated batch download of documents: new versions are created only for modified documents, comments to documents are automatically merged, but new versions are not created);
- A special report, which is automatically generated after the project is downloaded, is an overview of all documents added or changed, including for each document there is a hyperlink with the possibility to go to it in the Pilot-ICE system;
- Batch printing of documents from the project, automatic selection of printers and paper trays of the required formats.



Export of project

Creating an extra functionality

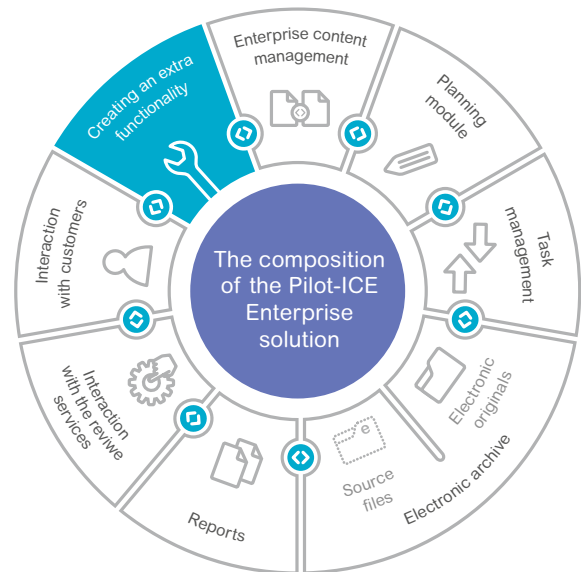
Pilot-ICE expansion modules allow you to supplement the functionality of the basic software product and customize the system to customer needs.

The following features are provided for this:

- Possibility to purchase, order or independently develop extension modules to the system;
- Providing an SDK for the development of modules, including an API description, ready-made design options and many examples of use;
- Technical support for the development of extensions;
- Integration with other information systems using open documented tools.

Examples of modules:

- WebClient for Pilot-Server;
- Module for creating a project by template;
- Module «Export XPS to PDF»;



- Module for exporting PDF documents to XPS format
- Components for collaboration Autodesk Revit and Pilot-ICE;
- Alpha Locator module for publishing DWG (DXF) drawings inside the Pilot-ICE system;
- Module «Project structure copying to Pilot-Storage».

Solution architecture

The Pilot-ICE system is a client-server engineering data management system consisting of a server application Pilot-Server, a server part of the analytical function Pilot-SearchServer, one or several databases, an application for

administering Pilot-myAdmin and a client application Pilot-ICE. The database management system (SQLite DBMS) is built-in to the Pilot-Server and does not require separate managing.

Pilot-SearchServer is an analytical server for searching by text and geometry.

Management of database, system configuration and organizational structure of users are carried out using the Pilot-myAdmin – application for admin – which can be installed on any computer, including separately from the server, remotely connected.

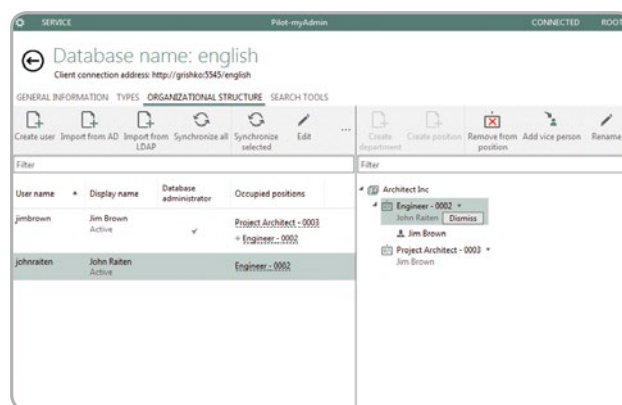
Any computer can be used as a server.

You can connect to the server from any computer through a local network or the Internet.

In order to ensure comfortable operation of users if communication with the server is unstable (specialists of remote departments, seconded employees, connecting via 3G or 4G modems, etc.), all the data that users work with is cached on their PCs in local databases of client applications Pilot-ICE. This allows users to work comfortably at low connection speed, when a connection is broken and in offline mode. Due to this «total caching», it is possible to fully use all system functions, including annotating and signing documents, working with Pilot-Storage files, etc., in the absence of a connection to the server. After the connection is restored, all the data changed and added by the user will be automatically sent to the server.

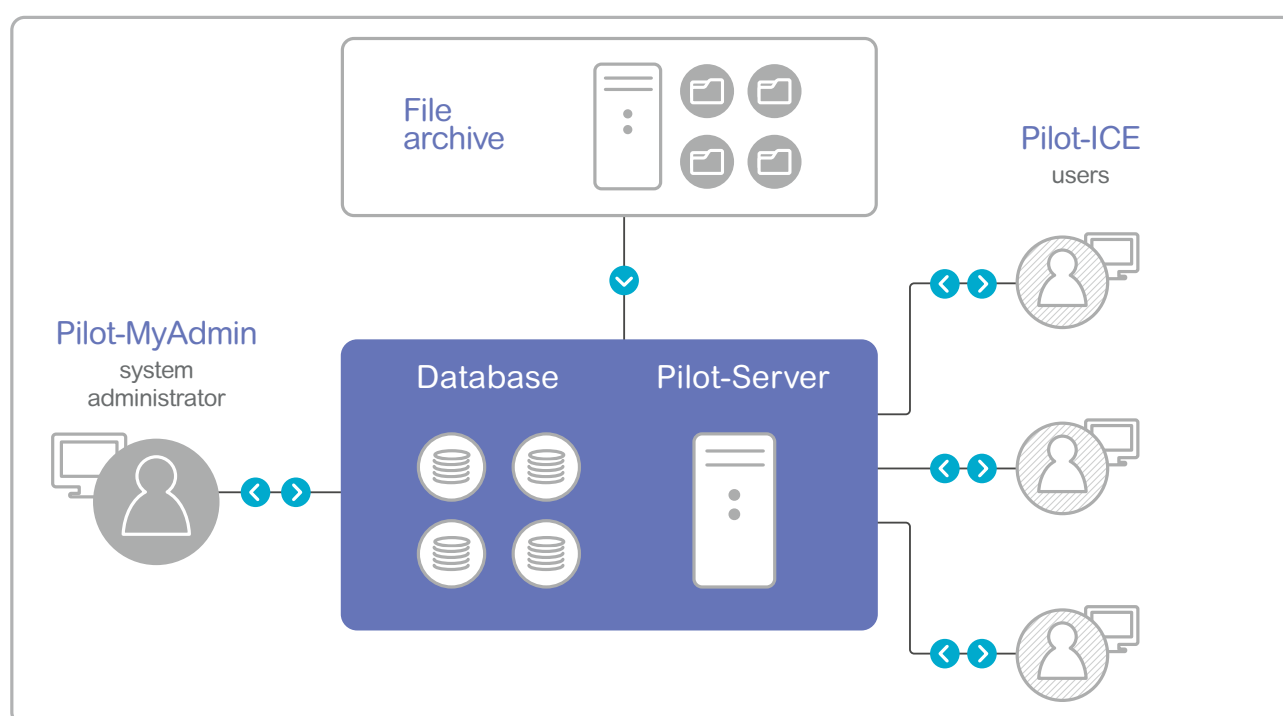
Advantages:

- Built-in SQLite DBMS in Pilot-Server. The absence of expenses for acquisition and managing of DBMS;
- Reliability of storage and the possibility to work with large amounts of data and a large number of users. DBMS is characterized by high performance;
- As a result of load testing, the Pilot-ICE server showed high-performance parameters. Testing was conducted with a different number of simultaneous connections: from 1 to 25, with 300,000 objects in the database;
- Easy installation, configuration, and administration: all components of the system are installed within minutes, the database contains a tuned configuration;



Pilot-myAdmin. User registration

- Ability to install the server part on Windows and GNU/Linux;
- Prompt making amendments to the database, instant data update for users;
- Automatic updating of all Pilot-ICE components: downloading updates from the Pilot-ICE application server via the Internet, automatically install client application updates when connecting to the server;
- Work at low connection speed, when a connection is broken and in offline mode;
- Reservation of licenses (the ability to assign licenses to a subdivision or a counterparty);
- Working in secure HTTPS connection mode.



Benefits and advantages of using the Pilot-ICE system in the enterprise

Management

- Reduction of time for preparation of documentation/ execution of projects;
- Control timeliness of tasks' completion;
- Improving the quality of design;
- Optimization of staff utilization;
- Preservation of the company's intellectual property;
- Organization of a legally valid workflow using an electronic signature in accordance with Federal Law No. 63-FZ;
- Conducting inter-organizational legally valid electronic document flow between the participants of the construction project («designer-customer», «designerbuilder», etc.).

Economic

- Low cost of acquisition and possession due to the absence of hidden costs for the purchase and managing of DBMS (only licenses for Pilot-ICE are purchased);
- Minimum load on the server, the ability to work on existing servers in the organization (without acquiring new ones), installation is possible on Windows Server or Linux;

- A free commercial full-featured version of the Pilot-ICE system for two users (installation on Windows Server) and for five users (on a server with Linux OS) for an unlimited time of use;
- High performance and scaling – the work of a large number of users in a single information space with a huge amount of data;
- Access to the system via any communication channels – distributed work in the enterprise network and remote work via the Internet.

Technical

- Easy installation – high availability and quick installation of system components;
- Easy setup – no additional burden on IT staff due to the built-in database management system (DBMS), which is ready for use immediately after installation and does not require additional configuration;
- Easy integration into the enterprise software environment – quick readiness to work with various graphics and text editors;
- Fast mastering and ease of use – an intuitive and highly optimized user interface;
- A high speed of teamwork – an interaction of project designers is carried out in electronic form «in the split second»;
- Data protection through storage on the local enterprise server and access right control;
- Full teamwork in an unreliable network infrastructure, weak public access channels up to offline;
- Ability to extend the functionality to solve various application tasks using the application programming interface (API) of the system;
- Automatic updating of all Pilot-ICE components: download updates from the Pilot-ICE application server via the Internet, automatic installation of client application updates when connecting to the server.



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