The IES GUI – A Primer: Using the FSTP-Test, Inhouse Mode

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This Version of the primer is still incomplete and under development. It will be replaced by a follow up version if appropriate.
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Preface

The purpose of this primer is to enable an IES-user to perform the (Facts Screening/Transforming/Presenting) FSTP-TEST of the Innovation Expert System (IES) and then to review and revise what has been entered. The IES and its FSTP-TEST provide support for inventors and lawyers for the claim interpretation and claim construction of their Emerging Technology based Claimed Inventions (ETCIs) in advance of the patent application process. After completing all of the tests successfully, the result (confirmed by the PPOS) can be provided directly to the patent examiner for review. The IES is a browser-based application; we recommend Internet Explorer 11, Chrome 46, or Firefox 42, or higher versions of any of these browsers.

1.1 The contents of this primer

This primer facilitates a quick and thorough introduction to the IES and its FSTP-TEST and is organized so that all tests can be conducted as quickly as possible following the example of the ”DDR ‘399” ETCI. The primer focuses only on the US National Patent System (US NPS), ETCIs and the REHERSAL and INHOUSE mode of operation.

The prompting mechanisms of the IES guide the user through the FSTP-TEST of an ETCI. The primer shows by example how to call up an ETCI previously tested with the FSTP-TEST, how to create a new ETCI, how to enter the items of an ETCI, and how to apply the tests to the ETCI and its CONCEPTs and modify the CONCEPTs if necessary. After successful completion of the FSTP-TEST all SPL-requirements are fulfilled. The ETCI then is called totally robust. Comprehension questions that appear at the ends of the chapters provide additional redundancy checks for the content of these chapters.

Fonts and conventions in this primer

Items, identifiers and button-, menu- and window-names appear in SMALL CAPS. File- and legal names or precedents, and text that is to be entered by the user appear in italics; > represents a link to a chapter or section.

Fonts and conventions on the UI

OPERATION and NAVIGATION buttons are red when active and gray when inactive. The actual focus of the FSTP-TEST in the FSTP-TEST box (Figure 1.2c) is shown in red font (when showing this box is configured). If possible, here the current position of the respective item in the actual test is additionally highlighted. In the OVERVIEW box (section 1.3.1 areas) the ETCI items that are currently active are highlighted, e.g. in red or by a red border. System input is separated from user input by using different fonts (italics with or without serifs).

Background information

For background information in using functions or items, references (Chapter 4 Operating an ETCI) explain in more detail how to log on to the IES under the URL https://fstp-es.teles.de/ or at www.invention-expert-system.com or www.innovation-expert-system.com, how to rename or delete entered items, or how to use the representation tools and features effectively.

More scientific information about the IES- and FSTP-TEST specific terms - e.g. about ELEMENTs, TT.0 and TT.1 (technical teachings), levels of abstraction or CONCEPTs, namely A-CRCs (abstract, aggregated compound creative concepts), E-CRCs (elementary creative concepts, potentially contributing to innovative ideas), E-CRCs (concept sets), INs (inventive concepts comprising legal and creative concepts), V- respectively M-CRCs (verbal creative or mathematical creative concepts), - are to be found on the web reference list (fstp-expert-system.com/) or in the textbook (Patent/Innovation Technology and Science [182]). References provided in brackets [] indicate documents on the web reference list.
1.2 Overview of the IES and its FSTP-TEST

The IES UI of the FSTP-TEST (Figure 1.2), guides the IES user in accordance with 35 USC §§101, 102, 103, and 112, and with the USSC’s (US Supreme Court’s) precedents, in the best and easiest way through the entire FSTP-TEST by prompting the user to answer – based on the ETCI’s description – all questions correctly. It is at any time possible to switch to a route other than the one suggested by the system. In any case the user can request support (e.g. by email) by using the HELP DESK button (Window 1.2a) left to the LOG OUT button.

After LOGGING IN (section 4.1 LOG IN) the availability of National Patent System (NPS) documents (Window 1.2a) and PREFERENCES SETTINGS (Figure 1.3.2β and section 4.2 UI customization) can be configured (e.g. customizing the appearance and behavior of information and tools or resetting the IES-SETTINGS to default values).

If configured, the external Master Review Form¹ (section 4.1.6 MRF) about the ETCI (Window 1.2b) shows up and can be filled in or reviewed.

¹ The MRF is derived from the IEG/USPTOs MRF and is intended to be publicly available in future patent application procedures.

The FSTP-TEST then continues with prompting in-depth questions that mirror the USSCs MBA framework decisions (Figure 1.2). All answers and entries will be saved and can be displayed and edited at any time. The IES offers several representation and navigation tools.
1.3 Areas of the IES GUI

The IES starts with its FSTP-TEST in the MAIN window, from which all other windows are invoked. This MAIN window is split into different areas comprising menus and buttons enabling normal user OPERATION, user FEEDBACK or user CONTROL.

The IES’s MAIN window works with three kinds of areas (Window 1.3): The left-hand side of most screens (if configured accordingly) is reserved for information about the ETCI currently being worked on, e.g. the actual test being executed (then highlighted in the FSTP-TEST box) or the items derived so far and shown in the LIST OF ITEMS AND ITEM IDENTIFIERS (abbreviated LIST OF ITEMS) box.

Window 1.3: MAIN window with FEEDBACK-, OPERATIONS-, and CONTROL-area

This area is separated by a bold vertical line (section 3.1 setup of an ETCI), which can be shifted to the left or right. This separates the left USER FEEDBACK (abbr. FEEDBACK) area from the right USER OPERATIONS/INPUT (abbr. OPERATIONS) area, allowing for input in the INPUT box. Resizing the used space within areas accordingly is also supported by horizontal lines. Above these areas the CONTROL area supports control of the IES behavior and appearance (e.g. of the FEEDBACK/OPERATIONS area, the KR-GRAPH, the CONTROLPOINT or the OVERVIEW box).

1.4 Menus of the IES

In the menu bar at the top of the MAIN window, the ETCI menu (Figure 1.4a) allows the user to select an ETCI from a list of all currently available ETCIs (ETCI LIST) or to create a new ETCI (CREATE ETCI (INHOUSE)).

By means of the SETTINGS menu (Figure 1.4b and section 4.2 UI customization) the account information under PROFILE can be reviewed or updated, or the password can be changed.

In the submenu PREFERENCES of the SETTINGS menu various settings allow the user to change the appearance of the screens and to preselect an NPS and precedents. In the submenu PERMISSIONS access rights on ETCIs can be defined for other users.

When the IES user LOGS OUT by closing the browser (-windows) or by means of the LOG OUT button in the upper right-hand corner all open windows will be closed and the ETCI’s current state will be saved. When this ETCI is opened again, e.g. at the next LOG IN on the IES, the IES will automatically return to the spot in the test at which this ETCI was left.

At the bottom of the MAIN window the IES user’s account name and other information is displayed.
1.5 Buttons of the IES

On the upper left-hand side of the CONTROL area the tool bar with several buttons that control the behavior and appearance of the IES UI (Figure 1.5) is located. These buttons serve to invoke and control several aspects of the current ETCI. The KR-GRAFH, which is a graphical representation of the relationships between the items (i.e. the knowledge representation) of this ETCI, provides a KR-focused visual overview (section 4.4.4 KR-GRAFH). The CONTROLPOINT provides a structural presentation of the items and allows the user to control the test sequence on specific items (section 4.4.3 CONTROLPOINT), by navigating to the desired tests and items more quickly than by backtracking. The CONTROLPOINT and the KR-GRAFH can be used to show the marked up items of the respective information (MUs). Usually MUs are given on the O-LEVEL but with respective privileges they can also be assigned on ELEMENTs or A-/E-/V-/M-CONCEPTs. The CONTROLPOINT also provides the entered justifications for the various tests and items. The Anticipation/Nonanticipation Matrix, (AN-MATRIX or ANM, section 4.6 ANM), displays an ELEMENT-wise comparison between the CONCEPTs of T1.0 and the peer CONCEPTs of other TT.i.s. By means of the VIEW AC button the different combinations of these peer CONCEPTs that allegedly anticipate T1.0 can be shown. This ANM is the basis for calculating the creative height. With the NPS CONFIG button, the usage of NPS documents and their MUs is possible. The OVERVIEW button opens a window showing all of the generated items. The current item is highlighted in red along with all of the superordinate items in red boxes. The different technical teachings, i.e. T1.0 and peer TT.i.s can be selected with the technical teaching button. The FSTP MODE selection supports different modes of operation. In the top middle, the current working phase and status and the name of the current ETCI are shown.

![Image](image-url)

Figure 1.5: The tool bar below the menu bar (see also section 5.1 BUTTON LIST).

The MAIN window, CONTROLPOINT, and KR-GRAFH are synchronized with each other; for example, selecting in the KR-GRAFH a specific CONCEPT will highlight the same item in the OPERATIONS area.

Several OPERATION buttons - e.g. the buttons ANNOTATION (to add comments related to the entered item) or EDIT (to modify the entered items) - can be active at the same time. MANAGE MUs (section 4.5.2 generating MUs) supports extraction and display of portions of the plain text or images of the patent document. Within MANAGE MUs files from the computer’s file system (section 3.1.6 upload document) can be selected to make them available in the IES. In order to enter something in the INPUT box, the respective title of the INPUT box will usually blink.

The OPERATION buttons are separated from the BACKWARD and FORWARD NAVIGATION buttons to navigate step-by-step through the FSTP-TEST. A click on the buttons moves the user to the previous/next item. The NAVIGATION button that determines the main route, i.e. the recommended next step, is the bigger GUIDANCE button between the BACKWARD and FORWARD button. It always shows the next suggested user action (e.g. continuing with another item or test) and can be clicked directly. During the test activities, the GUIDANCE button always continues showing the proposed next user action.

In the FEEDBACK area (e.g. in the box titles of the, LIST OF ITEMS or HISTORY box) a click on the (+) and (-) signs collapses or expands these boxes. In the OPERATIONS area (e.g. within the LIST OF ITEMS box) the (+) or (-) signs serve to expand or collapse the fields containing portions of text. Clicking the titles of most boxes opens them in a new window.

The ▼ and ▲ signs allow to display the information in a single line or to show the entire information.

Comprehension questions:
1. At which URL is the LOG IN to the IES provided?
2. Where in the IES can the desired National Patent System be configured?
3. Where in the IES are all of the tested ETCIs listed?
4. Which menu of the IES allows the user to create a new ETCI?
2 Example of a tested ETCI

Using an ETCI that has already been prepared, this chapter demonstrates how to navigate through the tests. In this example all input is already provided and will not need to be altered.

2.1 The DDR ‘399 ETCI

The entire document ‘399 of DDR Holdings, LLC can be found at the USPTO: US 7,818,399 Bl. It is also available in the example ETCI. The ELEMENTs, A-CRCs and E-CRCs and their relations are quoted (with small changes and omissions) from document [440] on the web reference list http://www.fstp-expert-system.com:

For any ETCI and its Xn's functionalities holds On = AnPred = EnCon⁺ (here 1≤n≤3), while their KRs totally differ.

Claim 1 of the DDR-ETCI has 3 ETCI-elements, representing: X1 := S(ales)S(erver), X2 := P(roduction)S(erver), X3 := P(roducts), with EcrC1 := e1 := PSSurp (= PS-URL opaque); e2 := PSurp (= PS-URL); e3 := SSurl (= SS-URL); e4 := Pid (= product-id), e5 := PSlook&feel, whereby the up/down-arrows indicate the change-direction at the modules' APIs.

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<table>
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<tbody>
<tr>
<td>O1</td>
<td>:=</td>
<td>MUI1</td>
<td>&amp;</td>
<td>A1Pred := E1Con⁺ &amp; E1Con⁺ := (e4&gt;e5&gt;e3)# &amp; e2# &amp;</td>
<td>:= (e4&gt;e5&gt;e3)# &amp; e2# &amp;</td>
</tr>
<tr>
<td>O2</td>
<td>:=</td>
<td>MUI2</td>
<td>&amp;</td>
<td>A2Pred := E2Con⁺ &amp; E2Con⁺ := (e4&gt;e5&gt;e3)# &amp; e2# &amp;</td>
<td>:= (e4&gt;e5&gt;e3)# &amp; e2# &amp;</td>
</tr>
<tr>
<td>O3</td>
<td>:=</td>
<td>MUI3</td>
<td>&amp;</td>
<td>A3Pred := E3Con⁺ &amp; E3Con⁺ := (e4&gt;e5)# &amp;</td>
<td>:= (e4&gt;e5)# &amp;</td>
</tr>
</tbody>
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Of this DDR-specification’s 5 EcrCs 4 are GAcrcs (i.e. Pid, PSurl, SSurl, and PSurl⁺ (= the only inAliceC of claim1)) and 1 is an XcrC (namely: PSlook&feel as being of potentially increasing universe). Mathematizing them all is trivial, e.g. Pid := e(0,1,2,…) , PSSurp⁺ := 'PSurl at SS-API not accessible', .... This inAliceC transforms the -- by it in ETCI embedded -- npETT0 into its insofar PE application, •as it is significantly more than TT0 due to inAliceC’s independence of TT0, and •preserves TT0’s nature, hence is of limited preemptivity.

The DDR ‘399 ETCI named “METHODS OF EXPANDING COMMERCIAL OPPORTUNITIES FOR INTERNET WEBSITES THROUGH COORDINATED OFFSITE MARKETING” normally can be found in the ETCI LIST from the ETCI menu. We recommend that you create a separate backup copy (section 4.3.2 backup copy) of the ETCI. That way the IES user can always switch back to an unchanged version of this ETCI. In the ETCI LIST, checking the desired ETCI, and a click to the COPY button (Window 2.1), will show a popup window to provide an appropriate new name. Next the ETCI can be opened by clicking the new name.

An ETCI opened from the ETCI LIST will automatically return to the state it was in when it was last left. In the above procedure it will start with the MRE or the input, depending on the configuration.

Window 2.1: Opening an ETCI
2.2 Navigating through the DDR '399 ETCI

This example starts in the claim interpretation in which all the items (e.g. ELEMENTs, O-CONCEPTs, A-CONCEPTs, E-CONCEPTs and V/M-CONCEPTs) and relations are identified for the ETCI (Figure 2.2.1, Window 2.2.1). These items contribute in setting up the COM (ETCI), i.e., the structural combinations/components/relations and meanings of the items of the ETCI. The example continues with claim interpretation and claim construction (verifying the claim interpretation input of the user and the fulfillment of SPL requirements) in the CI DISCLOSURE-TEST stating that all E-CRCs are lawfully disclosed. The CI ENABLING-TEST states that all A-CRCs (conjunction of E-CRCs) are disclosed in a manner enabling the PPOS to implement them. The BIOSIG-TEST prompts for justifications of the definiteness, completeness, uniquely definedness and the usefulness of the COM (ETCI). The BILSKII-TEST determines whether the TT.0 is NPE. These tests are followed by the APPLICATION OF NATURE OF TT.0-TEST, the ALICE SIGNIFICANTLY MORE-TEST, the LIMITED PREEMPTIVE-TEST, the INDEPENDENCE-TEST, the KSR (RS)-TEST, and the GRAHAM (RS)-TEST.

The items generated during test execution of the DDR '399 ETCI are shown in the LIST OF ITEMS (Window 2.2.1) on the left side of the screen, i.e., in the FEEDBACK area. During the input phase, all user-defined names of items and their relationships identified for the ETCI have been entered. Formal names of items in the LIST OF ITEMS behind the colon (its content is shown in the mouseover) will be referred to as identifiers and used in the example to navigate through the tests.

Window 2.2.1: LIST OF ITEMS and navigation

2.2.1 Input phase

1. The external Master Review Form MRF (section 4.3.6 MRF) will appear (if configured) when an ETCI is created or opened. Navigation through this MRF is performed by means of the respective buttons.

2. A click on the identifier ETCI (the mouseover will show “METHODS OF EXPANDING COMMERCIAL OPPORTUNITIES FOR INTERNET WEBSITES THROUGH COORDINATED OFFSITE MARKETING”) of the item ETCI NAME in the LIST OF ITEMS (Window 2.2.1) or the use of the FORWARD button will show the ETCI NAME entered in the INPUT box together with all other information already entered (e.g. aliases, keywords and details for COM or O-[A-F-E-KR]) for the ETCI. The name also appears in the OVERVIEW box, which opens with a click on the respective button in the CONTROL area tool bar. The keywords appear in the ETCI LIST as comments.

3. Clicking FORWARD or the identifier TT.0 of the item TT.0 NAME in the LIST OF ITEMS shows the TT.0 NAME in the INPUT box. All document(s) are already uploaded in order to provide MUIs in this example.
4. An ETCI is made up of its TT.0 and its APPLICATION (A), indicated by the item APPLICATION NAME in the LIST OF ITEMS.

5. A click on the identifier of one of the items ELEMENT NAME(s), or O-CONCEPT NAME(s) – i.e. the separate component(s) of an ELEMENT on the original level of disclosure – shows the respective information in the INPUT box.

6. A click on one of the identifiers of the item of A-CONCEPT NAME(s) in the LIST OF ITEMS box shows the NAME and MEANING/PREDICATE of the clicked A-CONCEPT. Each O-CONCEPT is characterized by exactly one A-CONCEPT, and the description of its MEANING expresses this ELEMENT’s properties in more detail than the ELEMENT’s name alone. All A-CONCEPTs of an ETCI together form a set A-CRCS as stated in the lines of the FSTP-TEST’s input phase (Figure 2.2.1).

Clicking the BACKWARD and FORWARD buttons to navigate between entered items or tests moves the user to the respective items. This is reflected by highlighting in red of the current testing context on the left side of the FSTP-TEST box (Window 2.2.1). Clicking the identifiers in the LIST OF ITEMS box allows the user to navigating more quickly.

7. If possible, each A-CRC is disaggregated further into a conjunction of E-CRCS. The separate E-CRCS of this A-CRC can be selected by clicking an identifier of the item E-CONCEPT NAME(s) FOR A-CRC0. A click on the respective identifier in the LIST OF ITEMS box on the left; for example, clicking E-CRC0, shows the user-defined name of E-CRC0 (Pid) in the INPUT box on the right, together with additional questions characterizing this E-CRC precisely. All E-CRCS of an ETCI together form a set of E-CRCS as stated in the FSTP-TEST’s input phase (Figure 2.2.1). E-CRCS can further be supported (if configured) by V-CRCS and M-CRCS on a modeled verbal and mathematical level.

8. The CONCEPTs and ELEMENTs may be supported by MUls. In the initial configuration they will be provided solely for O-CONCEPTs. They have been created by means of the MANAGE MUls button under the INPUT box. (section 4.5.2 manage MUls, section 3.1.6 upload document).

2.2.2 Test 1 (CI DISCLOSURE-TEST)

1. In the LIST OF ITEMS box (Window 2.2.2) clicking the identifier CI_DISCLOSURE-TEST_1_E-CRC0,1 navigates the user to the first justification (here of E-CRC0,1) in the CI DISCLOSURE-TEST.

2. The question whether E-CRC0,1 is lawfully disclosed appears in the red title bar of the INPUT box. The answer/justification provided to that question is entered inside the input box. In addition the confirming radio button in this question is selected.

3. Clicking the FORWARD button displays the justifications for the following E-CRCS.
2.2.3 Test 2 (CI ENABLING-TEST)
1. Clicking the FORWARD button again leads to the justifications for the CI ENABLING-TEST, which checks whether the A-CRCs are enablingly disclosed.
2. In this test the IES user has explained why the E-CRCs of this A-CRC exactly make up this A-CRC. The user has confirmed that the A-CRC is a conjunction of its respective E-CRCs and that the PPOSC understands how to implement it (Window 2.2.3).

Window 2.2.3: Justification for CI ENABLING-TEST

Clicking the FORWARD button again leads to the next justifications. (Note: The IES user can also navigate to individual justifications in the LIST OF ITEMS or in the CONTROLPOINT to read the justifications.) For the following tests no windows are provided in this primer.

2.2.4 Test 3 (BIOSIG-TEST)
1. Clicking the FORWARD button or navigating by means of the LIST OF ITEMS accordingly shows the justification and questions in the BIOSIG-TEST.
2. In this test the user justifies and confirms that E-CRCs are definite, complete, uniquely defined, and useful.

2.2.5 Test 4 (BILSKI-TEST)
1. In the BILSKI-TEST the IES user has provided a justification stating that the ETCI comprises an NPE TT.0. The user has confirmed that the entire TT.0 and/or at least one of its E-CONCEPTs are NPE (i.e. a law of nature or an abstract idea).

2.2.6 Test 5 (APPLICATION OF NATURE OF TT.0-TEST)
1. In the APPLICATION OF NATURE OF TT.0-TEST the user's justification and confirmation is presented, stating that the additional creative ALICE CONCEPT of the ETCI does not add or remove any of TT.0's CONCEPTs.

2.2.7 Test 6 (ALICE SIGNIFICANTLY MORE-TEST)
1. The ALICE SIGNIFICANTLY MORE-TEST shows the justification, stating the user's view that the ETCI has more CONCEPTs than TT.0 and that these additional CONCEPTs (realizing the ALICE CONCEPT) are independent from TT.0 and add additional creativity to this ETCI.

2.2.8 Test 7 (LIMITED PREEMPTIVE-TEST)
1. The LIMITED PREEMPTIVE-TEST displays the justification and confirmation that in the ETCI the E-CRCs/E-CRCs are patent-eligible and non-preemptive.

2.2.9 Test 8 (INDEPENDENCE-TEST)
1. In the INDEPENDENCE-TEST the IES user has enterd the justification for the E-CRCs that no E-CRC can be derived from any of the other E-CRCs and thus that the E-CRCs is independent.
2.2.10 **Test 9 (KSR (RS)-TEST)**

1. The **KSR (RS)-TEST** serves for setting up the **ANM** (window 2.2.10, section 4.6 ANM). After having passed the **ELIGIBILITY-TESTs** (i.e. the **BILSKI** APPLICATION OF NATURE OF TT.0/1 ALICE SIGNIFICANTLY MORE/1 and **LIMITED PREEMPTIVE-TEST**), the information for each TT.1 is entered into the **IES** in the same way as it was done for TT.0 during the initial **INPUT PHASE**.

2. **All documents are UPLOADED and MARKED UP** (section 4.5.2 manage **MUIS**, section 3.1.6 upload document).

3. **A CLICK on the button ANM in the tool bar opens the AN-MATRIX** (Window 2.2.10). The rows in the AN-MATRIX display the **TTs** of the RS (reference set consisting of TT.0 and TT.i is peer to TT.0), while the columns display the **E-CRCs** grouped accordingly to **ELEMENTs/A-CRCs**. By default the entries for TT.0 are set to N (not anticipated by PS), and for TT.i they are set to A (anticipating the E-CRC of TT.0). An A entry can be changed to an N entry and vice versa by clicking on it.

4. **When the IES user was satisfied with the content provided in the ANM he entered his justification as to whether the **COM (ETCI)** is definite over RS and his confirmation that the ANM is completely set up in the INPUT box for the **KSR (RS)-TEST**. The user has also provided the differences between the **CONCEPTs** of a TT.1 peer to TT.0 and quantified the **CREATIVE HEIGHT** of the ETCI by the q-value.**

2.2.11 **Test 10 (GRAHAM (RS)-TEST)**

1. In the **GRAHAM (RS)-TEST** the **IES user states that at least one of the **E-CRCs** of the ETCI is not anticipated, and the DDR '399 ETCI is new and not obvious and patentable. If more than one TT.i is considered at least two **E-CRCs** of the ETCI shall not be anticipated by RS. The value of q is calculated in the ANM and indicated to the user.**

The **IES user may at anytime freely navigate within the ETCI and view the entire input.** (section 4.4 navigation and presentation)

**Comprehension questions:**

1. How is a previously tested ETCI opened in the **IES**?
2. How is a copy of an ETCI created in the **IES**?
3. Which possibilities to navigate within an ETCI are described?
4. What are the **ELEMENTs, A/E-CRCs and APPLICATION in the DDR '399 ETCI**?
5. Where in the is or the ANM called up?
6. What do A and N entries in the ANM stand for?
3 Input and Test of an ETCI

After an introduction of the test of the DDR '399 ETCI this section describes entering the items and justifications for testing an ETCI. The procedures, windows and figures described for the DDR '399 ETCI will mostly not be repeated here.

3.1 Creation, setup and input of an ETCI and its items

An ETCI in the IES is tested according to a selected NPS. Currently the US NPS is supported. The SPL- and precedents-documents to be used generally in the IES can be configured under PREFERENCES (section 4.2 UI customization). This initial setting for all ETCIs can be tailored further, i.e. reduced to a small set of selected documents, for the current ETCI by means of the NPS CONFIG button in the tool bar.

In the INPUT PHASE, the IES user may fill in the MREF form (if configured). The names and details of the ETCI, the technical teaching TT.0, and the APPLICATION A, and ELEMENTs will be entered or updated. Thereafter all descriptions for the O/IA/E-I/v-IM-CONCEPTs together with information about e.g. these item’s kind, relations or predicates, (see [182] on the web reference list) are entered in the IES.

The ETCI’s exact and precisely defined E-CONCEPTs generally require several iterations throughout all of the descriptions in the CONCEPTs. Previously entered items may be changed in order to improve the accuracy and preciseness and to meet the SPL/NPS requirements. The A-CONCEPTs are precisely defined by these E-CONCEPTs.

The files for TT.0/TT.i are uploaded. They are the basis for the description and the MUs of the invention in the claim interpretation. The CONCEPTs and ELEMENTs may be supported by MUs. In the initial view they will be provided solely for o-CONCEPTs. The MUs are created by means of the MANAGE MUs button under the INPUT box. (section 4.5.2 manage MUs, section 3.1.6 upload document). In the popup window that opens the IES user can upload, rename, delete, and mark up relevant documents and create and assign MARKUPS in these documents for the ETCI items.

The primer describes a straightforward sequence of input and navigation. How the screens and buttons appear is self-explanatory. If for any reason the IES user decides to follow another sequence, some differences may occur. In this case the user may navigate to an appropriate point in the sequence as described, e.g. with help of the LIST OF ITEMS.

The left FEEDBACK area is reserved for information about the ETCI currently worked on, with a vertical line separating it from the right OPERATIONS area. Clicking the collapse arrow, « (Window 3.1) next to the INPUT box serves to enlarge the OPERATIONS area with its MREF and INPUT box. Click the expand arrow► to move in the other direction. The height and width of the areas and boxes can be adjusted according to the user’s wishes (with help of the vertical and horizontal lines). Moving the mouse e.g. to the right border of the FEEDBACK area, will change the cursor’s shape. Holding down the left mouse button and pulling the border to the preferred position changes the view accordingly.

Window 3.1: Shrunken/enlarged areas

Version subject to change
An IES user can define an annotation or click the Edit button to modify entered content for each item entered. The format of the entered text can be chosen by clicking the Formatting panel (section 4.5.3 formatting entries).

3.1.1 Creating a New ETCl and Its Initial Information

1. The IES user creates a new ETCl in the menu bar in the upper left-hand corner of the Control area by selecting Create ETCl (in-house) from the ETCl menu. (Note: if the user wants to update an existing ETCl, he clicks ETCl List of the ETCl menu and selects an ETCl from the list.)

2. The IES is automatically placed in “rehearsal mode” for the purpose of testing the ETCl under SPL and entering, generating, and/or modifying the respective items. If so configured, the MRF will appear in the Operations area of the Main window. Before entering or testing an ETCl, some simple questions about the user’s invention have to be answered in the MRF.

3. When the questions are answered to the user’s satisfaction, clicking the Save button followed by the Forward or Guidance button continues with the input phase. The MRF form will close and the Input box will open and instruct the IES user (i.e., prompting the user by showing a red blinking title asking for the ETCl’s characteristics) to enter the name and other details of the ETCl. (Note: The IES user can call up the MRF form at any time. Clicking the Plus Sign (+) in the title bar of the MRF box reopens the MRF form. Selecting the MRF identifier from the List of Items box or clicking the title of the MRF box opens a separate popup window with the MRF information.)

3.1.2 Input Phase: Entering the Name and Details for a New ETCl

1. A click on the identifier ETCl in the List of Items leads to the Input box in the Operations area. The blinking red title instructs the IES user to enter the name and details of the ETCl. The Guidance button between the left Backward and the right Forward buttons will also prompt the user to enter the ETCl-characteristics (Window 3.1.2a). The user enters whether there is already a draft of the O-A-KR of the invention or its ETClS and its selected COM, the ETCl’s name, aliases and some keywords (appearing in the ETCl List), as well as additional details of the COM selected for this ETCl, by clicking the radio buttons, selecting the Category (cooperative Patent classification, CPC) and typing into the input fields. The alias will be shown in the Main window’s Title.

2. When all information is entered in the Input box, a click on the red Save ETCl button stores this input and the button turns grey to indicate that it is now inactive. The name of the ETCl will appear with a mouseover of the identifier ETCl in the List of Items box, in the ETCl status in the border at the center of the Control area, and in the Input box itself (Window 3.1.2b).

Window 3.1.2a: Entering a name for the ETCl
3.1.3 INPUT PHASE: ENTERING NAMES FOR TT.0 AND APPLICATION A

1. Clicking the FORWARD or GUIDANCE button after saving the ETCI characteristics or clicking the identifier of the item TT.0 NAME in the LIST OF ITEMS box allows to enter a name for the technical teaching of the invention, TT.0 and to provide an annotation. The blinking title bar in the INPUT box and the GUIDANCE button will prompt the user to enter a name for the technical teaching of the invention, TT.0. A click on the SAVE TT.0 button stores the entered information.

2. Clicking the FORWARD button or the GUIDANCE button allows the user to enter the name for the application (A) with its embedded ALICE CONCEPT for the ETCI.

3. The name is saved by means of the button SAVE A.

4. The input can be reviewed in the OVERVIEW box (section 4.4.2 INPUT OVERVIEW) or in the popup window that appears by clicking the INFO box icon (circled “i”) behind an identifier in the LIST OF ITEMS (section 4.4.1 LIST OF ITEMS).
3.1.4 INPUT PHASE: ENTER THE NAMES FOR ETCI’s ELEMENTs, O- AND A-CONCEPTs

1. Clicking the FORWARD or GUIDANCE button allows the user to enter the name for the first ELEMENT. The saved name is shown in the LIST OF ITEMS (Window 3.1.4).

2. If there is more than one ELEMENT, unchecking the checkbox END OF INPUT ITEM at the lower bar of the INPUT box allows the user to enter the names for further ELEMENTs. ELEMENTs can be ADDED or DELETED by using the EDIT button.

3. Proceeding the same way with the FORWARD or GUIDANCE button, the user can enter, FORMAT and SAVE the names of the (original) O-CONCEPTs and the names and PREDICATES/MEANINGS of the (aggregated) A-CONCEPTs. The PREDICATE/MEANING of an A-CONCEPT is a technical description expressing the corresponding ELEMENT more formally.

![Window 3.1.4: Entering an ELEMENT and FORMATTING the text entered in the INPUT box](image1)

3.1.5 INPUT PHASE: REFINING THE A-CONCEPTs INTO E-CONCEPTs

1. After clicking the FORWARD or GUIDANCE button, the A-CONCEPTs are refined into E-CONCEPTs. For each E-CONCEPT the name and the (now even more precise) PREDICATE, as well as selections regarding the kind and relation of this specific E-CONCEPT have to be entered. If there is more than one E-CONCEPT for an A-CONCEPT, the checkbox END OF INPUT ITEM is used. (Window 3.1.5).

![Window 3.1.5: Entering and saving the name of the first elementary concept E-crC0:1 for A-crC0](image2)

2. The procedure is repeated for all of the E-CONCEPTs for all A-CONCEPTs.

3. All items that are entered are displayed in the LIST OF ITEMS box, the OVERVIEW box (section 4.4.2 INPUT OVERVIEW), the CONTROLPOINT (section 4.4.3 CONTROLPOINT), and the KR-GROUP (section 4.4.4 KR-GRAPH). Clicking the buttons in the tool bar opens the respective popup windows.
3.1.6 INPUT PHASE: UPLOADING TT AND PROVIDING MUIs FOR THE O-CONCEPTs

1. Clicking the MANAGE MUIs button allows the user to upload the files belonging to TT.0. A meaningful name (Figure 3.1.6) for each document is chosen and using the BROWSE button allows the user to select the PDF (in OCR-form) file from the computers filesystem.

2. A click on the SAVE button after the selection and naming of the document stores the document in the IES and prepares it for the following mark up.

3. Once all of the documents are UPLOADED clicking MANAGE under MARKUP IN the MANAGE MUIs menu and clicking to the link MARKUPS behind the respective FILE NAME opens a separate window where the MUIs for the O-CONCEPTs can be created.

4. In the opened window the user clicks the button ADD MARK, draws a rectangle with the mouse (click, hold and drag) around the desired text or image and then clicks the small ADD icon below the drawn frame. Finally a name is provided in the respective NAME field at the left hand side (typing in manually or using the REPLACE/APPEND option at the bottom) of this window. After selecting the respective O-CONCEPT the input is saved by means of the SAVE button and the windows can be closed. (For further details and providing MUIs also for other ETCH-items see section 4.5.2 managing MUIs).

3.2 Test 1: CI DISCLOSURE-TEST

The CI DISCLOSURE-TEST establishes inventive CONCEPTs (E-INC with E-LEC) by constituting that all E-CRCs entered have been lawfully disclosed. Following the described sequence of activities exactly and having completed the INPUT phase as described, clicking the FORWARD or GUIDANCE button or the LIST OF ITEMS navigates to the CI DISCLOSURE-TEST. In the interest of brevity, the following test descriptions only mention the FORWARD button.

1. In the CI DISCLOSURE-TEST for each E-crc (characterized by its MUIs if configured) this E-CRC’s being lawfully disclosed according to §112 is justified. The IES user also confirms the DETAILS as to whether or not an E-CONCEPT is lawfully disclosed. The CI DISCLOSURE-TEST begins with the first E-CONCEPT E-CRC01 for the first A-CONCEPT of the TT (here TT.0) (Window 3.2α).

2. When the user is satisfied with the entries for this CONCEPT, clicking SAVE shows the item in black font in the LIST OF ITEMS (Window 3.2β) and the FORWARD button allows to continue with the next E-CRC.

Figure 3.1.6: Upload the files belonging to TT.0

Window 3.2α: User input for the CI DISCLOSURE-TEST
3. When all E-CRCs have been justified, the complete E-CRCS has been lawfully disclosed. Clicking FORWARD leads to the CI ENABLING-TEST.

4. The previous justifications for the ETCI are displayed in the LIST OF ITEMS, as well as in the CONTROLPOINT and the OVERVIEW box.

3.3 Test 2: CI ENABLING-TEST

In the CI ENABLING-TEST, the IES user must justify and confirm that the A-CRCs are conjunctions of their respective E-CRCs and that they are described in a manner that would enable the PPOS to understand them.

Window 3.2b: The justification for the CI DISCLOSURE-TEST in the LIST OF ITEMS

Window 3.3: The CI ENABLING-TEST

1. After having answered the question and details (the A-CRC is a conjunction and the PPOS understands how to implement the current A-CONCEPT) that appear in the INPUT box, a click on the SAVE button leads to the justification of the next A-CRC or, if the input for all A-CRCs is SAVED, to the BIOS/G-TEST.
3.4 Test 3: BIOSIG-TEST

In the BIOSIG-TEST, the IES user will provide a justification and confirmations that the ETCI and the embedded NPE TT.0 that its E-CRCS represents, is E-definite, E-complete, uniquely defined, and useful. In the BIOSIG-TEST the user does not provide justifications on individual CONCEPTs but on the complete CONCEPT set E-CRCS.

1. The user proceeds as in the previous tests. After entering the justification and the confirmations, the SAVE and the FORWARD button are clicked and the justification in the next test can entered.

Window 3.4: The BIOSIG-TEST

3.5 Test 4: BILSKI-TEST

The BILSKI-TEST is concerned with confirming that the TT.0 is nPE, i.e. that at least one E-CRCS represents an abstract idea or a natural law or that the complete TT.0 as such is an abstract idea.

1. The IES user proceeds as in the previous tests.

2. After SAVING, the justification is shown in the LIST OF ITEMS, the OVERVIEW box and in the CONTROLPOINT. Clicking FORWARD allows the user to proceed with the APPLICATION OF NATURE OF TT.0–TEST.

Window 3.5: The BILSKI-TEST
3.6 Test 5: APPLICATION OF NATURE OF TT.0-TEST
In the BILSKI-TEST the user confirmed that the TT.0 is nPE. Thus at least one E-CRC or the complete TT.0 is exceptional (abstract idea or natural law). By means of the APPLICATION OF NATURE OF TT.0-TEST the IES user assures that the ETCI, i.e. E-CRCs, contains not only the (ALICE-) APPLICATION (respectively this APPLICATION’s CONCEPT(s)) that serves to transform the unpatentable, unlimited preemptive TT.0 into a limited preemptive ETCI but also all iNCs (INVENTIVE CONCEPTs) that describe TT.0.

1. After SAVING the user proceeds as in the previous tests and continues with the ALICE SIGNIFICANTLY MORE-TEST.

3.7 Test 6: ALICE SIGNIFICANTLY MORE-TEST
In the ALICE SIGNIFICANTLY MORE-TEST the IES user justifies that COM (ETCI) comprises an ALICE CONCEPT not derived from the ETCI’s TT.0.

1. The IES user proceeds as above and enters the justification stating the existence of an ALICE CONCEPT (a creative CONCEPT that is independent of TT.0). The user than proceeds with the LIMITED PREEMPTIVE-TEST...

Window 3.6: The APPLICATION OF NATURE OF TT.0-TEST

Window 3.7: The ALICE SIGNIFICANTLY MORE-TEST
3.8 Test 7: LIMITED PREEMPTIVE-TEST
In the LIMITED PREEMPTIVE-TEST the iES user justifies that the ETCI comprises an unlimited preemptive TT.0, an APPLICATION OF THE NATURE OF TT.0, and an inventive ALICE CONCEPT, such that the ETCI is of limited preemptivity and patent eligible.

1. The user proceeds as in the previous tests.

Window 3.8: The LIMITED PREEMPTIVE-TEST

3.9 Test 8: INDEPENDENCE-TEST
In the INDEPENDENCE-TEST the user has to provide the justification for whether or not COM (ETCI) comprises only E-cRCs that are independent of each other.

1. The user proceeds as in the previous tests.

Window 3.9: The INDEPENDENCE-TEST
3.10 Test 9: **KSR (RS)-TEST**

In the **KSR (RS)-TEST** the user justifies that all E-CRCink are well-defined over their peer E-CRC0nk, i.e. whether they are the same as or different from their peers in the TT.0. To this end, the user will have to create the TT.is (section 4.6 TT.is) and to modify the ANM (section 4.6 ANM for a description of the anticipation-nonanticipation-matrix). If the E-CRCink does not deviate far from the E-CRC0nk (for the same n and k) change the value A to N in the area of the ANM indicated by the TT.i line and the E-CRC0nk column. Otherwise the value is set to A. After that, the ETCI's creative height can be determined.

1. The user proceeds as in the previous tests and sets the values of the ANM.
2. The user can change the ANM's values any time.

Window 3.10: The KSR(RS)-TEST

3.11 Test 10: **GRAHAM (RS)-TEST**

After completion of all tests up to the **KSR(RS)-TEST** the **GRAHAM-TEST** calculates the **CREATIVE HEIGHT** of the COM (ETCI) automatically from the ANM. If it is >1, the ETCI is patentable. This test uses all possible anticipation combinations (ACS) – i.e. each possible combination of E-CRCink from all prior-art documents peer to the respective TT.0-CONCEPT - to determine whether or not the complete ETCI is patentable. (Note: The CREATIVE HEIGHT should be 2 if there are more than one possible ACS).

1. The user enters and **Saves** the justification in the INPUT box.
2. Clicking the ANM button in the CONTROL area followed by the VIEW AC button to open the ANM (indicating the anticipation of the E-CRCS) and AC table causes the calculation for potential paths (ACS) and the CREATIVE HEIGHT to be shown.

Window 3.11: Justification for E-CRCETCI in the GRAHAM-TEST
4 Operating an ETCI

This chapter describes how to access the IES and customize the FSTP-TEST’s user interface (UI) to fit the IES user’s needs, to manage the ETCI's data, to provide prior art documents (TTs) and navigate within an ETCI, and how to use mark-up features and other features for the ETCI. The ANM and VIEW AC table will also be explained.

4.1 LOG IN (details)

On the LOG IN page of the IES interested users may request a temporary account. Once a user has received the login information by mail, he can open the FSTP-TEST by entering the following URL in the web browser: https://fstp-es.teles.de.

1. The user enters a USERNAME and PASSWORD and clicks the LOG IN button. If the user is new to the IES, i.e. if he never has LOGGED IN so far, a popup window comes up with the licensing conditions to be accepted and a mask for changing the PASSWORD generated by the IES into a PASSWORD only known to the user. The user may thereafter activate REMEMBER ME to SAVE the LOGIN information for future access to the IES.

2. If the user has forgotten the USERNAME or PASSWORD, clicking either LOGIN HELP or the link CONTACT US in the red footer bar will support the user.

3. From the SETTINGS menu (Figure 4.1) selecting PROFILE also allows the user to modify and update the PASSWORD as well as other account information.

Figure 4.1: SETTINGS Menu
4.2 UI Customization (details)
The IES user can customize the UI (use of national patent system NPS and documents, and personal PREFERENCES) according to their needs.
1. Under PREFERENCES (Window 4.2) a range of settings can be configured in order to customize the IES. Selecting LAST ACCESSED ETCI automatically opens the last accessed ETCI after LOG IN. Options like KR-GRAPH, CONTROLPOINT and ANM allow the user to use these features. Selecting PARSER TEXT EXTRACTION reduces manually typing during the creation of the MUIs from the documents. HIGHLIGHT CONTENT and LEFT PANE SECTION allow for showing or hiding the boxes of the FEEDBACK area as well as blinking or not blinking of text. With the KR-SELECTION the KR-level(s) used are configured while JURISDICTION allows for setting a preferred NPS as this user’s default NPS.
2. PERMISSIONS allows the user to share or copy documents with/to the HELPDESK.

4.3 Managing an ETCI and TTS (details)
This section explains how to create a new ETCI, to open, rename or delete an existing ETCI, to create backup copies and assign ACCESS RIGHTS.

4.3.1 CREATING AND OPENING AN ETCI
1. To create a new ETCI, the option CREATE ETCI (INHOUSE) (Figure 4.3.1) from the ETCI menu is selected.
2. An existing ETCI is opened by selecting ETCI LIST from the ETCI menu and clicking the desired ETCI NAME in the ETCI LIST (Window 4.3.1)
4.3.2 CREATING A BACKUP COPY FOR THE ETCI
1. The ETCI to be copied is selected in the ETCI LIST and the COPY button is clicked. A dialog to provide the name for the new ETCI is opened.

4.3.3 DELETING AN ETCI
1. The ETCI to be deleted is selected and the DELETE button is clicked. DELETE needs to be confirmed.

4.3.4 RENAMING AN ETCI
1. The ETCI to be renamed is opened.
2. Clicking the identifier of the item ETCI in the LIST OF ITEMS shows the name of the ETCI in the INPUT box. By means of the EDIT button and MODIFY the new name can be provided and SAVED.

4.3.5 ALLOWING OTHER USERS TO ACCESS THE ETCI
1. Selecting PERMISSIONS from the SETTINGS menu (Window 4.3.5) allows selecting a user from the list for the desired ETCI and assigning the ETCI RIGHT for VIEWING or MODIFICATION and the SESSION RIGHT as READER or WRITER when cooperatively working with this ETCI.

4.3.6 MRFE
1. Clicking the external Master Review Form MRFE identifier in the LIST OF ITEMS opens the MRFE box (Window 4.3.6). The MRFE will also appear (if configured) when the ETCI is created or opened. A set of questions, all arranged to a respective headline as developed by the USPTO will be shown. Next to each question the user can use radio buttons or checkboxes to select the answers to the question or he can fill in statements into the text fields. For several of the questions short everyday explanations/comments are provided, which appear with a mouseover on the exclamation mark left of the question.
2. Clicking the title of the MRFE box opens the box in a separate popup window. Clicking the plus or minus sign expands or decreases the box.
3. In the bottom of the MRFE box navigation means serve for access of different pages, e.g. buttons to move one page forward or backward, buttons to move to the first or last page or an input field for the page number to access a page directly.

Window 4.3.6: MRFE
4.3.7 **Adding Prior Art, TT.js**

1. After having finished the *Input* phase and entered all items for the ETCi, the IES user should enter the technical teachings, TT.js of the considered prior art. They will be needed at latest in the KSR(RS)-Test. By means of the TT button in the tool bar a new TT.i (Window 4.3.7a) can be created. The first new technical teaching of the prior art is automatically assigned the formal name TT.1, and then shown in the INPUT box and in the OVERVIEW box.

2. Using the TT button also allows to switch back to TT.0 (Figure 4.3.7).

3. All items in the TT.1 are assigned their formal names and as default the user-defined name of their peer items from TT.0. They should be changed if desired. (Window 4.3.7b)

4. Clicking BACKWARD and FORWARD allows for navigation through the TT.1 items. For each TT.i the respective documents can be uploaded similar to the document(s) for TT.0 (section 3.1.6 upload document). The user can also generate MIUs for the CONCEPTS (section 4.5.2 generating MIUs). If there is no CONCEPT in TT.i corresponding to the CONCEPT of TT.0, the respective entries in the ANM shall be set to N (not anticipating) for the associated E-CRLink.

5. The TT.js relations are shown in the KR-GRAph by clicking the respective TT.i NAME in the outer circles of the KR-GRAph (Window 4.3.7γ). Alternately the KR-GRAphs for TT.0 and all other TT.js can be opened separately (in different windows) by clicking the links in the upper left TT NAMEs at the top of the KR-GRAph. A toggle button (section 5.1 button list) allows the user to switch between a centered and an item-focused presentation of the KR-GRAph.

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**Version subject to change**
4.4 Navigation and presentation (details)

A user can navigate to and display all of the items of the ETCI with the FORWARD button and the BACKWARD button and in the LIST OF ITEMS, the OVERVIEW, the CONTROLPOINT, and the KR-GRAPH. Any input required from the user is prompted by a red blinking headline of the INPUT box and by the GUIDANCE button.

4.4.1 LIST OF ITEMS

1. By selecting the identifier of the desired item of the ETCI in the LIST OF ITEMS the corresponding information will appear in the INPUT box as well as in the OVERVIEW box.
2. By clicking the title of the LIST OF ITEMS box this list can be opened in a separate window containing the user-defined names of all identifiers. (Window 4.4.1).

Window 4.4.1: The user-defined names of the ETCI’s identifiers in the LIST OF ITEMS
4.4.2 INPUT OVERVIEW

1. The OVERVIEW box lists all the available items of the ETCI and is opened by clicking the OVERVIEW button (triangle) in the tool bar. The current item is highlighted in red along with all of the superordinate items in a red box (Window 4.4.2a).

2. When for a section of the OVERVIEW (e.g. E-CONCEPTS) the ▼ sign on the far right (Window 4.4.2a) is clicked, all instances of this section (e.g. all E-CONCEPTS) are displayed. The trip of the triangle (Window 4.4.2γ) will then move to the top: ▲. Clicking it again will display only a single line for this section again.

3. Clicking the (+) sign allows the user to display the details of the E-CONCEPTS (Window 4.4.2β). Clicking the ▼ sign within these details shows the ANNOTATIONS, MEANINGS, justifications and the names (if configured and provided) of the MUI(S) OF SPECIFICATION³ for this E-CONCEPT.

4. Clicking one of the links allows the user to view the corresponding MUI in a popup window.

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³ Each short description of the CONCEPTs entered must be supported “technically” with descriptions or images from the MUIs of the ETCI’s description for a complete FSTP-TEST.
4.4.3 CONTROLPOINT

1. The ETCI’s structure is also shown in the CONTROLPOINT. The CONTROLPOINT can be used to navigate throughout the items and tests more quickly than by clicking BACKWARD or FORWARD, and can display the MUIs and justifications for the various tests. Clicking the CONTROLPOINT button (the bulletpoint, section 5.1 button list) in the toolbar to open the CONTROLPOINT, allows for a graphical presentation of the ETCI items and all of the item’s information that has been entered.

2. The CONTROLPOINT allows the user to select the TT using the TT’s button. With the toggle buttons (section 5.1 button list) different presentations can be displayed.

3. The CONTROLPOINT includes the names of all items once they have been entered. The names of the ETCI, TT, and APPLICATION, are displayed at the top. Clicking the plus sign (+) on the left (Window 4.4.3a) displays all ELEMENTS, O- and A-CONCEPTs. Clicking the plus sign above the ELEMENTs displays the corresponding E-CONCEPTs.

4. When the user right-clicks an E-CONCEPT the details in the INFO box (Window 4.4.3b), e.g. MUIs and justifications (Window 4.4.3y) can be shown. Items are colored and the current item is highlighted similar to items in the KR-GRAPH (section 4.4.4 KR-GRAPH). In the INFO box the user can also click CONNECT TO PROMPT at the bottom to display this E-CONCEPT in the MAIN window. The user can hover over an item with the cursor to see its user-defined name.
4.4.4 KR-GRAPH

1. The ETCI's structure can also be viewed in the KR-GRAPH with the item's names and MUIs and relationships and the respective TTs. Clicking the KR-GRAPH (the circle, section 5.1 button list) in the tool bar opens a popup window with the KR-GRAPH (Window 4.4.4α). The KR-GRAPH provides a graphical presentation of the relationships between the items. The inner circle contains the user-defined name of the ETCI and its ELEMENTs e.g. X1 or X.0.1 and their O-CONCEPTs, the middle circle contains the A-CONCEPTs, and the outer circle (omitting V- and M-CONCEPTs) contains the E-CONCEPTs.

Window 4.4.4α: The elementary CONCEPT in the KR-GRAPH

2. The current item's font appears in blue with a bold border in the KR-GRAPH. The color of the item's border indicates its KR-LEVEL. Moving the mouse over an item displays the user-defined name of the item. A double-click on an item opens the INFO box and allows to display MUIs provided for this item. (Window 4.4.4β). The lines between the items show the relationships between them.

3. Double-clicking the yellow marked MUIs of an item displays this MUI in a separate window where it may be changed.

4. The toggle button allows the user to switch between a centered and an item-focused presentation of the KR-GRAPH (Window 4.4.4γ).

5. Items are underlined in the KR-GRAPH if they are from the TT.0. Otherwise the items belong to the application's ALICE CONCEPT(s). The items in the TT.i have the same underline as their peers in TT.0.

6. The items in the TT.0 have a grey background in the KR-GRAPH if they are known to the PPOS C from pertinent skill.

7. The items in the TT.i have a red background in the KR-GRAPH if they anticipate their peer E-CONCEPTs in the TT.0.

Window 4.4.4β: MUIs for the elementary CONCEPT in the KR-GRAPH
4.5 Managing items, MUIs and formats (details)

During the tests the IES user will need to rename, delete, or add items to the ETCI, and to provide the justifications of the tests with descriptions or images from the ETCI’s specification using the MUIs. The user may also wish to format the entries.

4.5.1 DELETING, ADDING, AND RENAMING ELEMENTS AND CONCEPTS

1. If a user wants to ADD e.g. an E-CRC to an A-CRC, clicking the identifier of the item E-CRC NAME(s) for A-CRC in the LIST OF ITEMS shows the E-CRC in the INPUT box.

2. The user clicks the EDIT button and selects ADD to create a new item or DELETE to remove the current item (Figure 4.5.1).

![Diagram of E-CRC and A-CRC interactions]

Figure 4.5.1: MODIFY (rename) or ADD or DELETE an item
3. If an item is to be deleted this needs to be confirmed (Window 4.5.1) by clicking DELETE in the popup window again. During the input of items it is also possible to uncheck the END OF INPUT ITEM at the lower bar of the INPUT box for additional items.

4. To change the item’s content the user selects MODIFY (Window 4.5.1). After SAVING the changes the items appear in the LIST OF ITEMS and OVERVIEW boxes.

4.5.2 CREATING MUIs FOR THE ELEMENTS, O-CRCs, A-CRCs, E-CRCs

1. MUIs can be generated for ELEMENTs, O-/A-/E-/V- and M-CONCEPTs. In the simplest case they will be configured for the O-CONCEPTs only. These MUIs will have to be reworked (if configured) when A- and E-CONCEPTs or TTs are entered and when the tests are performed. An item is selected in the LIST OF ITEMS by clicking its identifier and will show up in the INPUT box.

2. Clicking MANAGE MUIs (Window 4.5.2α) allows defining the MUI describing this item.

3. If the resp. document (e.g. for TT.0) is not yet provided to the IES, it needs to be uploaded first. Clicking the button UPLOAD and MANAGE (Window 4.5.2β) under FILE in the MANAGE MUIs popup window that opens, allows the user to upload the desired documents. A meaningful name for each document is chosen and using the BROWSE button allows the user to select the PDF file from the computers filesystem (PDF is the only format currently supported. The document should be in OCR-form).

4. A click on the SAVE button after the selection and naming of the document stores the document in the IES and prepares it for the following mark up. The process is repeated for any other documents.

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5. Once all of the documents are uploaded clicking MANAGE under MARKUP in the MANAGE MUIS menu and clicking the link MARKUPS (Window 4.5.2β) behind the respective FILE NAME opens a separate DOCUMENT MARK UP window where the MUIS for the ELEMENTS AND CONCEPTS can be created.

6. In this DOCUMENT MARK UP window clicking the NAVIGATION buttons on top (Figure 4.5.2) allow the user to select the page for marking up a portion of information assigned to an item. Alternatively the user can click the respective thumbnails in the left lower area of the window.

7. In the opened window (Figure 4.5.2) the user clicks the button ADD MARK, draws a rectangle with the mouse (the user clicks in the text and holds the mouse button down to draw a rectangle around the content to be selected) and then clicks the small ADD icon (Window 4.5.2γ) below the drawn frame.

8. A MUI PROPERTIES box appears on the left side. A name is to be provided in the respective NAME field at the left hand side of this window by typing in manually or using the REPLACE/APPEND option (Window 4.5.2δ) to extract the rectangle’s text and to add it to the existing MUI DESCRIPTION or replace it. The line and column areas can optionally also be provided. After selecting the respective item the input is saved by means of the SAVE button and the windows can be closed.
9. The rectangle’s size may be edited, i.e. rearranged, or deleted. Clicking the buttons ELEMENT, CONCEPT, or O-CONCEPT and selecting SHOW or the KR (A-KR/E-KR) lists all respective items. Selecting one from the list shows the MUIs created for the item. (Window 4.5.2e).

10. MUIs assigned to E-CRCs are automatically distributed and assigned to their respective A-CRCs, ELEMENTs, and O-CRCs.

11. If MUIs are created for ELEMENT, O-CRC or A-CRC following the above procedure, the desired MUIs can be selected and assigned from these superordinate items’ MUIs to subordinate items, e.g. E-CRCs (Window 4.5.2η) by using the >> button. Clicking the << button reverses the process.

12. Double-clicking the item in the KR-GRAF or the CONTROLPON shows all MUIs created for this item.
4.5.3 FORMATTING ENTRIES
1. To format the text entered for items or justifications, i.e. to set text in italics, bold, super-, or subscript, or to remove previous formatting, the user clicks the EDIT and MODIFY button of the input box.
2. Clicking FORMATTING PANEL in the upper right-hand corner of the input box opens the formatting bar.
3. The characters to be formatted are selected and the desired formatting button is chosen. In order to store the format the SAVE button is clicked.

Figure 4.5.3a: Opening the FORMATTING PANEL

Window 4.5.3b: Formatting the selected character

4.6 The ANM and VIEW AC tables (details)
The creative height of an ETCI indicates the number of independent ideas (modeled by E-CRCs) necessary to express the ETCI, so each of the E-CRCs of a TT,i shows its anticipation/nonanticipation of its peer E-CRC in TT,0.

1. When the ETCI has successfully passed tests 1 through 8 and all prior-art documents’ TT,is are uploaded, the AN-MATRIX is opened by clicking the ANM button in the tool bar.
2. The rows in the ANM represent the TT,is, while the columns represent their E-CRCs. By default the entries in the ANM for TT,0 are set to N (not anticipated), and for the other TT,is they are set to A (anticipated). The PPOSC sets the entries for TT,0 to A if the respective E-CRC is known already from pertinent skill.

Window 4.6a: The AN-MATRIX

3. The A entries in the rows are to determine which E-CRCs of peer ETCIs correspond with the ETCI’s E-CRCs. Clicking an A entry allows to change it to an N entry and vice versa. If an E-CRC of a peer ETCI does not correspond
with its peer E-CRC\textsubscript{0,0} in the invention, or if it is significantly different, an N is entered in the ANM; otherwise an A.

4. In this way the matrix’s l+1 rows and the K columns present the complete set of all A/N information about the E-CRC\textsubscript{s} of the RS, as determined by the KSR-TEST. With the help of this information, the ETCI’s quantified CREATIVE HEIGHT is automatically calculated in the GRAHAM-TEST.

5. As there are different possible combinations of E-CRC\textsubscript{s} peer to the invention these combinations can be presented in the VIEW AC table.

6. The TT.is E-CRC\textsubscript{s} can be gathered randomly from the set of TT.i E-CRC\textsubscript{s}. This is achieved by selecting the CUSTOM selection button and then choosing one of the different paths using the small drop-down list.

7. Preferably the ELEMENT-WISE selection is chosen. Choosing the ELEMENT-WISE combination variant indicates whether or not an ELEMENT as such is completely anticipated by a TT.i of prior art (i.e. all CONCEPTS making up an ELEMENT are selected from the same TT.i). This reflects the requirement not to cherry-pick the desired E-CRC\textsubscript{s} from all TT.i’s E-CRC\textsubscript{s}.

Comprehension questions:
1. Where can a user request help in the IES?
2. How can an ETCI be opened, copied, renamed, deleted in the IES?
3. What can be selected under PREFERENCES in the IES?
4. What can PERMISSIONS be used for in the IES?
5. How can RIGHTS for the ETCI be assigned to others in the IES?
6. Which RIGHTS can be assigned to other users or the HELPDESK in the ETCI?
7. How is a TT.i added/generated in the IES?
8. How can an IES user navigate using the LIST OF ITEMS?
9. How can an IES user navigate using the OVERVIEW box?
10. How can an IES user completely display the names of all of the ELEMENTS, A- and E- CONCEPTS in the OVERVIEW box?
11. How can an IES user show CONCEPTS in the CONTROLPOINT?
12. How can an IES user display the ANNOTATIONS in the CONTROLPOINT?
13. How can an IES user display the MUI\textsubscript{s} in the KR-GRAPH?
14. How can an ELEMENT or E-CRC be added, deleted or modified in the IES?
15. What does MUI stand for in the IES?
16. To which items do MUI\textsubscript{s} belong in the IES?
17. Can an E-CONCEPT have more than one MUI in the IES?
18. Where can a user view see the MUI\textsubscript{s} in the IES?
19. How can the formatting bar be opened or closed in the IES?
20. What do A and N stand for in the IES ANM?
21. How are the entries in the AN-Matrix changed in the IES?
## Appendix

### 5.1 Button list

#### Global buttons

<table>
<thead>
<tr>
<th>Name</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>KR-GRAPH</td>
<td>1.5, 3.1.5, 4.2, 4.3.7</td>
</tr>
<tr>
<td>CONTROLPOINT</td>
<td>1.5, 3.1.5, 4.2, 4.4.3</td>
</tr>
<tr>
<td>AN MATRIX, ANM</td>
<td>2.2.10, 3.11, 4.2, 4.6</td>
</tr>
<tr>
<td>NPS CONFIG</td>
<td>1.5, 3.1</td>
</tr>
<tr>
<td>OVERVIEW</td>
<td>1.5, 3.1.5, 4.4.2</td>
</tr>
<tr>
<td>TT.0, TT.î</td>
<td>1.5, 4.3.7, 4.4.3</td>
</tr>
<tr>
<td>FSTP MODE</td>
<td>1.5</td>
</tr>
<tr>
<td>LOG IN</td>
<td>4.1</td>
</tr>
<tr>
<td>FEEDBACK</td>
<td>1.2</td>
</tr>
<tr>
<td>LOG OUT</td>
<td>1.4</td>
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</tbody>
</table>

#### Local buttons

<table>
<thead>
<tr>
<th>Name</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACKWARD</td>
<td>1.5, 2.2.1, 3.1.2</td>
</tr>
<tr>
<td>FORWARD</td>
<td>1.5, 2.2.1, 3.1.1, 3.1.2</td>
</tr>
<tr>
<td>GUIDANCE</td>
<td>1.5, 3.1.1, 3.1.2</td>
</tr>
<tr>
<td>EDIT</td>
<td>1.5, 3.1.4, 4.3.4, 4.5.1, 4.5.3</td>
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<tr>
<td>ANNOTATION</td>
<td>1.5, 3.1, 3.1.3</td>
</tr>
<tr>
<td>UPLOAD FILES</td>
<td>2.2.1, 3.1.6, 4.5.2</td>
</tr>
<tr>
<td>MANAGE FILES</td>
<td>3.1.6, 4.5.2</td>
</tr>
<tr>
<td>COPY ETCI</td>
<td>2.1, 4.3.2</td>
</tr>
<tr>
<td>DELETE ETCI</td>
<td>4.3.3</td>
</tr>
<tr>
<td>VIEW AC</td>
<td>1.5, 3.11, 4.6</td>
</tr>
<tr>
<td>SAVE ETCI</td>
<td>3.1.2, 4.3.4</td>
</tr>
<tr>
<td>SAVE TT.0</td>
<td>3.1.3</td>
</tr>
<tr>
<td>SAVE APPLICATION</td>
<td>3.1.3</td>
</tr>
<tr>
<td>SAVE ELEMENT</td>
<td>3.1.4</td>
</tr>
<tr>
<td>SAVE O-CRC</td>
<td>3.1.4</td>
</tr>
<tr>
<td>SAVE A-CRC</td>
<td>3.1.4</td>
</tr>
<tr>
<td>SAVE E-CRC</td>
<td>3.1.5</td>
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<tr>
<td>MANAGE MUIS</td>
<td>1.5, 2.2.1, 3.1, 3.1.6, 4.5.2</td>
</tr>
<tr>
<td>ASSOCIATE MUIS</td>
<td>4.5.2</td>
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</table>
## 5.2 Acronym list

<table>
<thead>
<tr>
<th>acronyms (abbreviation, notion)</th>
<th>complete name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>anticipation combination</td>
</tr>
<tr>
<td>A-CRC, A-CRC0n</td>
<td>aggregated compound creative concepts (of TT.0 and Element $1\leq n\leq N$)</td>
</tr>
<tr>
<td>A entry</td>
<td>Field in the ANM indicating anticipation of an E-CRC0n by the TT.$i$ is E-CRC</td>
</tr>
<tr>
<td>A-LEVEL</td>
<td>aggregated level of representation</td>
</tr>
<tr>
<td>AN-MATRIX, ANM</td>
<td>Anticipation/Nonanticipation Matrix</td>
</tr>
<tr>
<td>CI</td>
<td>Claimed Inventions</td>
</tr>
<tr>
<td>COM, COM (ETCI)</td>
<td>combination (of elements, items and relations)</td>
</tr>
<tr>
<td>CONCEPT</td>
<td>Concept</td>
</tr>
<tr>
<td>E-CRC, E-CRCnk</td>
<td>elementary creative concepts (of $TT.i$ $0&lt;i\leq I$ and Element $1\leq n\leq N$ and count $1\leq k\leq K$)</td>
</tr>
<tr>
<td>E-CRCS</td>
<td>elementary creative concept set</td>
</tr>
<tr>
<td>E=LEC</td>
<td>elementary legal concept</td>
</tr>
<tr>
<td>E-INCx, INC</td>
<td>elementary inventive concepts (comprising legal and creative concepts)</td>
</tr>
<tr>
<td>ELEMENT</td>
<td>Element, structural item of a COM</td>
</tr>
<tr>
<td>E-LEVEL</td>
<td>elementary level of representation</td>
</tr>
<tr>
<td>ETCIs</td>
<td>Emerging Technology based Claimed Inventions</td>
</tr>
<tr>
<td>FSTP-TEST</td>
<td>Facts Screening/Transforming/Presenting-Test</td>
</tr>
<tr>
<td>IES</td>
<td>Innovation Expert System</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>acronyms (abbreviation, notion)</th>
<th>complete name</th>
</tr>
</thead>
<tbody>
<tr>
<td>KR</td>
<td>knowledge representation</td>
</tr>
<tr>
<td>M-CRCs</td>
<td>mathematical creative concepts</td>
</tr>
<tr>
<td>M-LEVEL</td>
<td>mathematical level of representation</td>
</tr>
<tr>
<td>MBA</td>
<td>Mayo Biosig Alice</td>
</tr>
<tr>
<td>MRF</td>
<td>master review form</td>
</tr>
<tr>
<td>MUI</td>
<td>mark up unit of information</td>
</tr>
<tr>
<td>N entry</td>
<td>Field in the ANM indicating nonanticipation of an E-CRC0n by the TT.$i$ is E-CRC</td>
</tr>
<tr>
<td>NPE</td>
<td>non patent eligible</td>
</tr>
<tr>
<td>NPS</td>
<td>National Patent System</td>
</tr>
<tr>
<td>O-LEVEL</td>
<td>Original level of representation</td>
</tr>
<tr>
<td>O-CRC</td>
<td>original creative concept</td>
</tr>
<tr>
<td>PPOSC</td>
<td>Person of pertinent and ordinary skill and creativity</td>
</tr>
<tr>
<td>Q VALUE</td>
<td>QUANTIFICATION, SEMANTIC, CREATIVE HEIGHT</td>
</tr>
<tr>
<td>RS</td>
<td>reference set</td>
</tr>
<tr>
<td>SPL</td>
<td>substantive patent law</td>
</tr>
<tr>
<td>TT.0</td>
<td>technical teachings of the invention (count 0)</td>
</tr>
<tr>
<td>TT.$i$</td>
<td>technical teachings of prior art (count $1\leq i\leq I$)</td>
</tr>
<tr>
<td>UI</td>
<td>user interface</td>
</tr>
<tr>
<td>USSC</td>
<td>US Supreme Court</td>
</tr>
<tr>
<td>V-CRCs</td>
<td>verbal creative concepts</td>
</tr>
<tr>
<td>V-LEVEL</td>
<td>verbal level of representation</td>
</tr>
<tr>
<td>X0n</td>
<td>element</td>
</tr>
</tbody>
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