

## SCCH

### Software Competence Center Hagenberg

Programme: COMET – Competence Centers for Excellent Technologies

Programme line: K1-Centres

COMET subproject, duration and type of project:

Next, 01/2015 – 12/2018, multi-firm

## eKNOWs – Extract Knowledge from Software

The experts at Software Competence Center Hagenberg (SCCH) have developed a tool called eKNOWs that enables automatic extraction and analysis of expertise directly from source code.



### Generate a Printable Documentation

An electrical engineering enterprise owns a code base that was developed over the years typically in C++ and Fortran. eKNOWs lets you generate technical documentation largely automatically. This ensures synchronization between program code and technical documentation and thus their consistency. Complete program documentation can be generated automatically, whereby up to 70% of printable documentation is generated without additional changes in code and the rest can be covered by enhancements in the program code.



### Extract Knowledge from Legacy Code

Many PL/SQL scripts are used to generate statistics and reports. Here the challenge is that over the years the scripts often needed to be adapted to a changing IT infrastructure. On a change of the database system, the scripts were sometimes migrated automatically; thus meanwhile it is difficult to determine from which data sources the results came and on what basis they were computed. The complexity of the overall PL/SQL scripts and their dependencies, along with documentation that is no longer up-to-date, impede consistent traceability of computations. This also seriously impedes any maintenance of the software. On the basis of PL/SQL source code, eKNOWs lets you resolve the dependencies, and simplifies and documents the interrelationships.

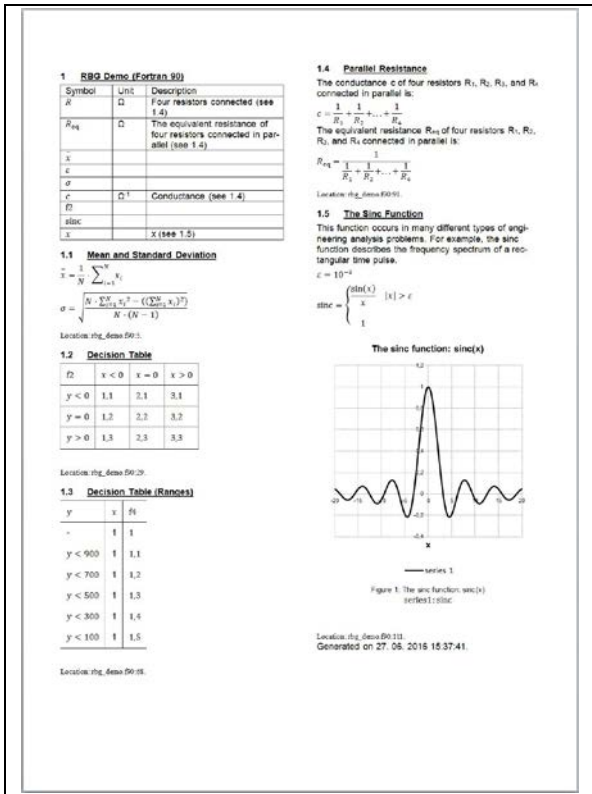


Fig. 1: Interactive documentation is also supported (e.g. analyse program paths using concrete parameter values). (SCCH)



**Impact and effects**

First-generation software experts will soon be retiring and taking the expertise that resides in the software that they developed with them. "Depending on the application domain, this can involve computations, formulas and/or state diagrams," explains Dr. Josef Pichler of SCCH.

Usually the software is written in old programming languages (Fortran, COBOL, PL/I) and lacks comprehensive documentation. eKNOWS provides the expertise in comprehensible form as mathematical formulas, decision tables and/or data flows. The interactive display options in eKNOWS improve understanding; this lets you display program paths with certain parameter values. "The tool can deliver documentation, an interactive representation of the software, or newly generated code in another language," says Pichler.



Fig. 2: Extraction (PIXABAY)

More about eKNOWS:  
[www.scch.at/de/eknows](http://www.scch.at/de/eknows)  
 You can also test eKNOWS:  
<https://www.scch.at/de/eknows-demo-registration>

**Contact and information**

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Siemens Aktiengesellschaft Österreich (Linz, Weiz)	Austria
voestalpine Stahl GmbH	Austria

Further information on COMET – Competence Centers for Excellent Technologies: [www.ffg.at/comet](http://www.ffg.at/comet)  
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