



A Tool to Support the Capture of Individual Process Data

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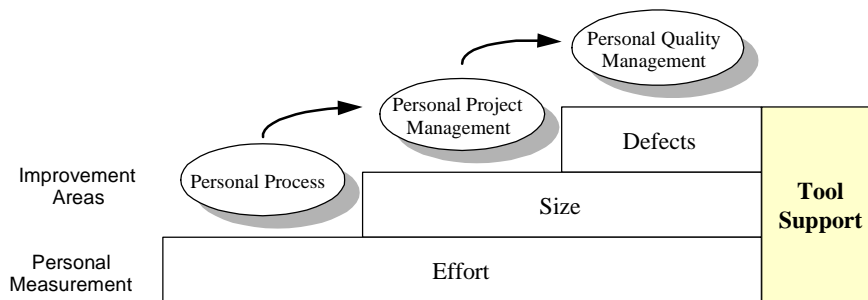
Who Are We?

- PIPSI - Process Improvement for Programming Skills in Industry
- Funded by European Commission as ESSI project 27453
- The project consortium:
 - Dublin City University (Ireland)
 - Politecnico di Torino (Italy)
 - European Software Institute (Spain)
 - AFTI (France)
 - IVF (Sweden)
- Main project deliverables
 - A personal process improvement methodology
 - A set of configurable training materials
 - Personal project tool to support data gathering



PIPSI Structure

- The PIPSI model is supported and controlled through the use of measurement
- Measures help us understand the fundamental relationship between size and effort, thus improving estimating abilities



The Need to Record Data

- Empirically based SPI frameworks such as PSP and PIPSI focus on the individual software engineer and require them to record data
 - about time spent programming, the defects they find in their software and size of the software, etc.
- The PSP as described by Humphrey is a manual process
 - The engineer records, transfers and analyses the data all on paper forms
 - After many projects, the engineer accumulates a large paper database of their historical data



Data Recording Problems

- There is a need for a support tool, to simplify the recording and analysis of the data
 - Developers tire of recording data on paper forms and eventually usage of the disciplines peters out
- Feedback from Irish PSP training programmes has suggested this is one of the major barriers to continued usage of the methods
- A two year PSP study in USA found that there was significant data quality issues with manual PSP
 - For example, not all defects were recorded because the overhead in recording was too expensive



Existing Data Recording Tools

- The project consortium reviewed existing tools
 - PSP Studio (East Tennessee State University)
 - PSP Tool (TQC Software)
 - Leap toolkit (University of Hawaii)
 - Various other time, defect, LOC recording tools, etc.
- PIPSI needs not meet.
 - Open and flexible approach to data capture
 - Choice of metrics - ability to configure
 - Web based - thus open to more users / platforms

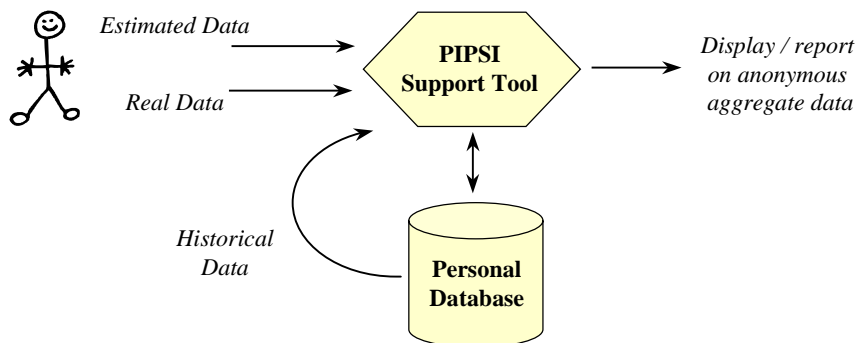


PIPSI Tool Requirements

- Data Capture
 - simple & easy recording of data such as time, size and defects
- Data Analysis
 - automatic analysis of collected data to generate aggregate project data in textual and graphical form.
- Other criteria
 - All data gathered and analysed during a process should be stored in a private database.
 - The developer can optionally elect to anonymously submit gathered data to a central database.
 - The tool should be platform independent.
 - The developer (user) should be able to work in a stand-alone manner, i.e. no network connection required.



PIPSI Tool Usage



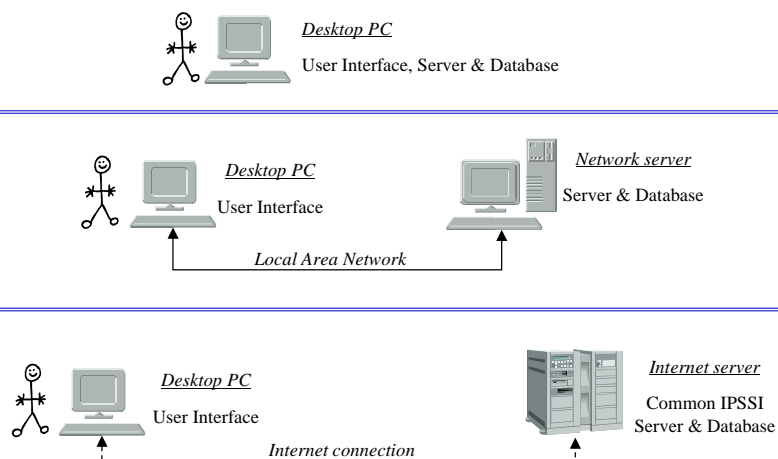


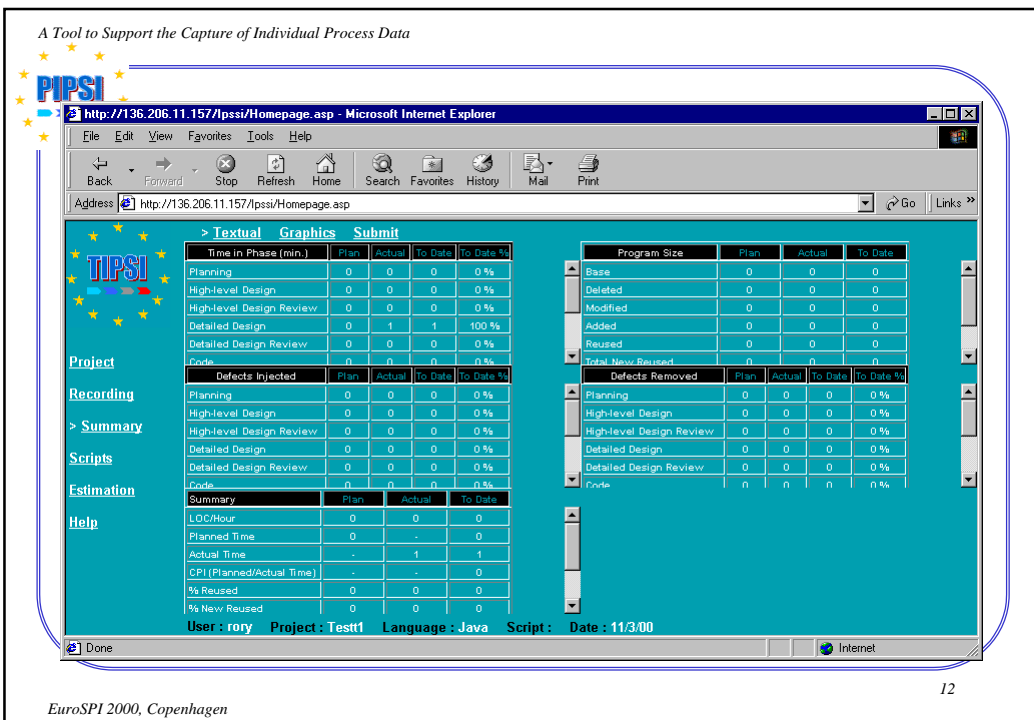
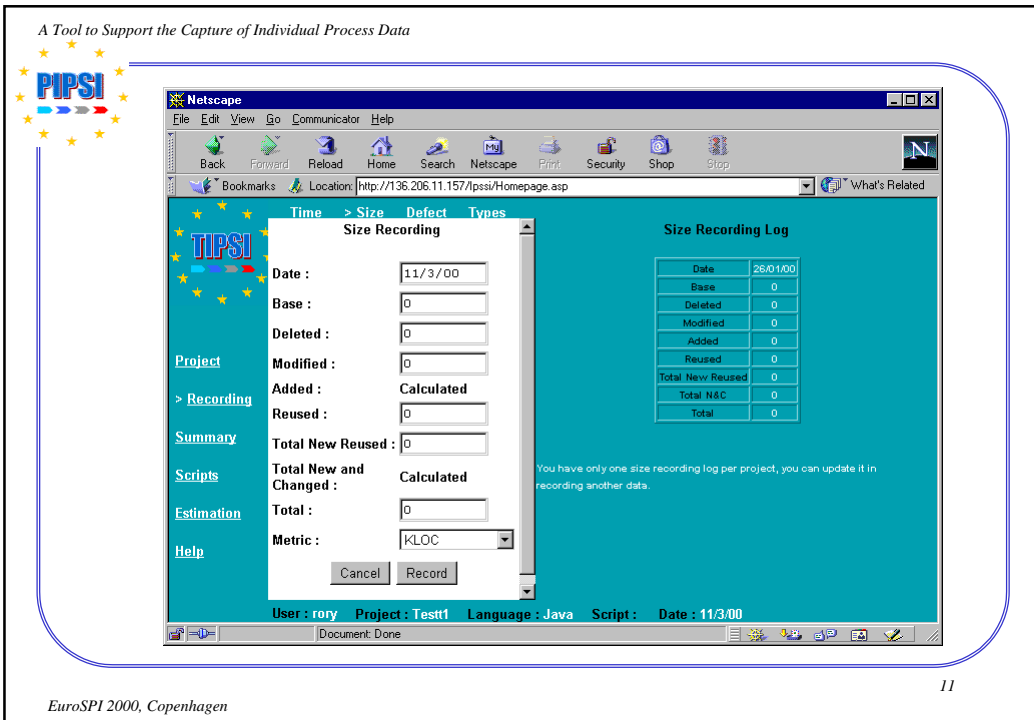
Tool Implementation

- The PIPSI support tool was implemented using Active Server Pages which interact with a database system
- This provides for a light weight implementation which facilitated a flexible approach to system implementation
 - The web pages of the system are a code mix of VBScript and standard HTML
 - The VBScript of the requested web active server page is interpreted by the web server, which generates HTML code which in turn is sent to the clients browser and is displayed like a pure HTML page
 - The underlying PIPSI data is held in a standard Microsoft Access 2000 database , which is accessed by the Active Server Pages via ODBC connection to the database



Possible Configurations

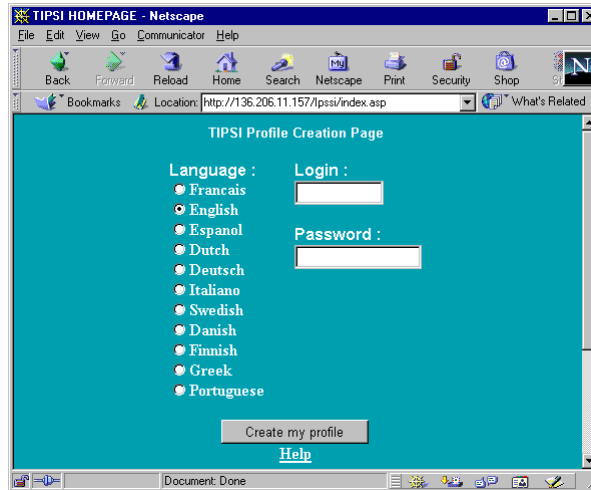






Multi-Language Support

- English,
- Spanish,
- Italian,
- more to follow



13



Tool Usage

- Commercial PIPSI training courses have taken place
 - Ireland, Italy, France, Spain and Sweden
- Academic PIPSI training courses have taken place
 - Ireland, Italy and Sweden
- The tool (including previous prototype versions) has been used at these courses and feedback has driven changes
- Also used by AFTI (Campus Thomson) as part of their technical training programme

14



Current Status

- Several iterations of prototypes and trials
- Final release version available next month

- PIPSI training materials will be freely available
- Tool will be freely available as open source

- For more details, see our web site

<http://www.compapp.dcu.ie/pipsi>