



Using Apache Velocity for generating Xojo code from an existing database model

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CEO

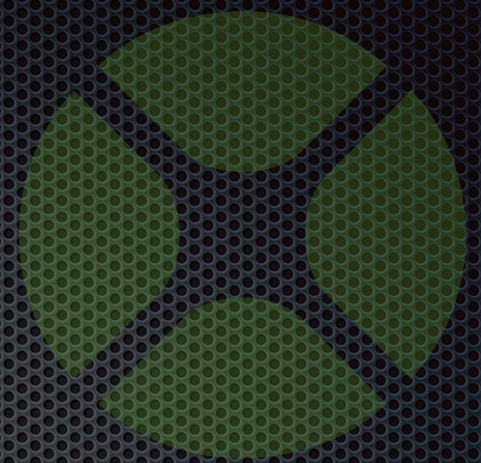
Dettmer Informatik GmbH & Co. KG, Germany

After Lunch

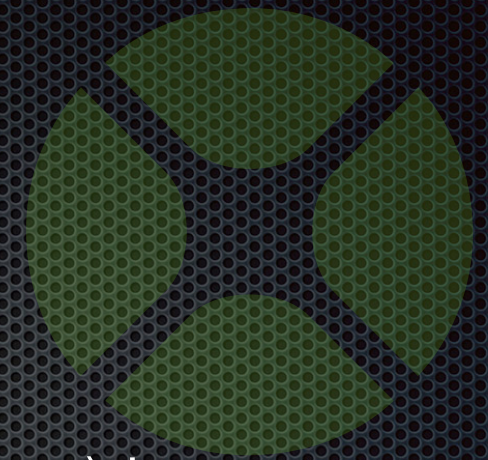
- Your stomach needs all your oxygen
- Your brain may encounter a slow down
- May be you go asleep
- Don't mind !



- I do not mind ...
- I will talk to your subconsciousness
- This will work better anyhow ;-)



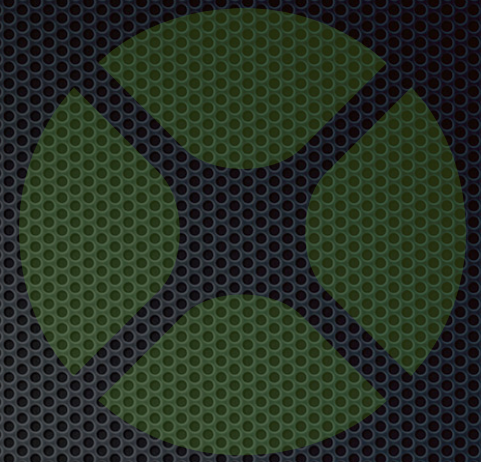
About



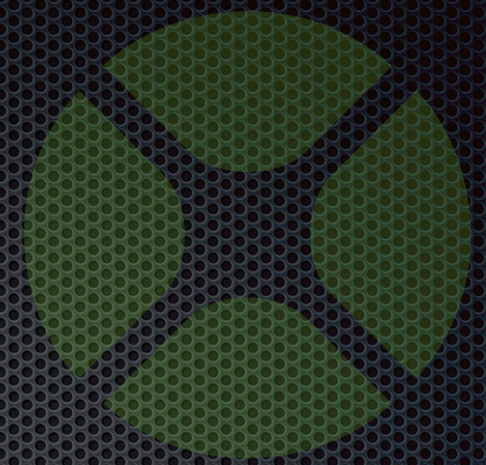
- Dettmer Informatik GmbH & Co. KG (Germany) is a specialist for individualised software, which means business software for purposes, where no standard product would fit. Our customers run their businesses in printing, wholesaling, health, trade and many other areas
- Living near Munich in an antique school from 1875
- Daughter with my first wife, divorced, married again ;-)
- Entrepreneur since 1978

Assumption

- You are producing Software for your Customers
 - You like to optimise your work like we do
 - You are working with databases
 - You are using existing code as foundation
-
- If this is the case: This presentation is for YOU !



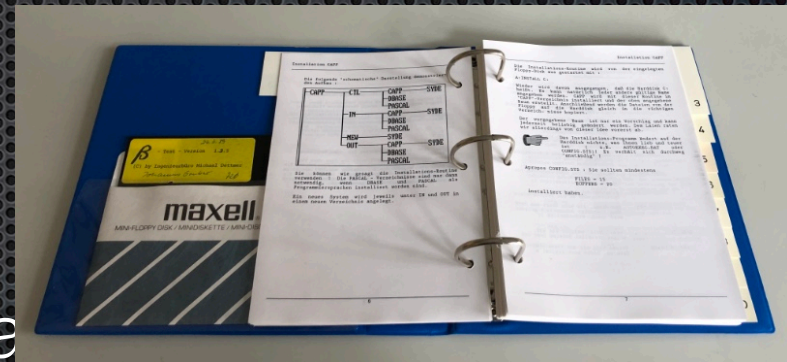
Agenda



1. Introduction
2. Templates
3. Velocity
4. TeloSys (Demo 1)
5. The Germ (Demo 2)
6. Xojo Templates (Demo 3)
7. CAPP with Xojo (Demo 4)
8. Embeds and Variables (Demo 5)
9. CAPP Licenses
10. Q&A

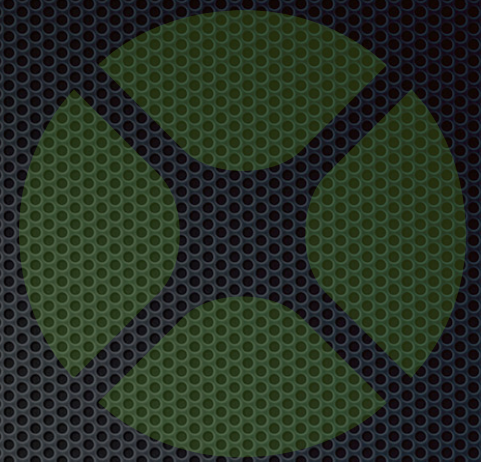
Story

- CAPP[®] - Computer Aided Program Production
- DOS and Clipper in 1984
- C + Pascal in 1988
- Prospects regarded CAPP as a
- Customers became competitors
- Very limited marketplace
- Finally it was a **FAIL**

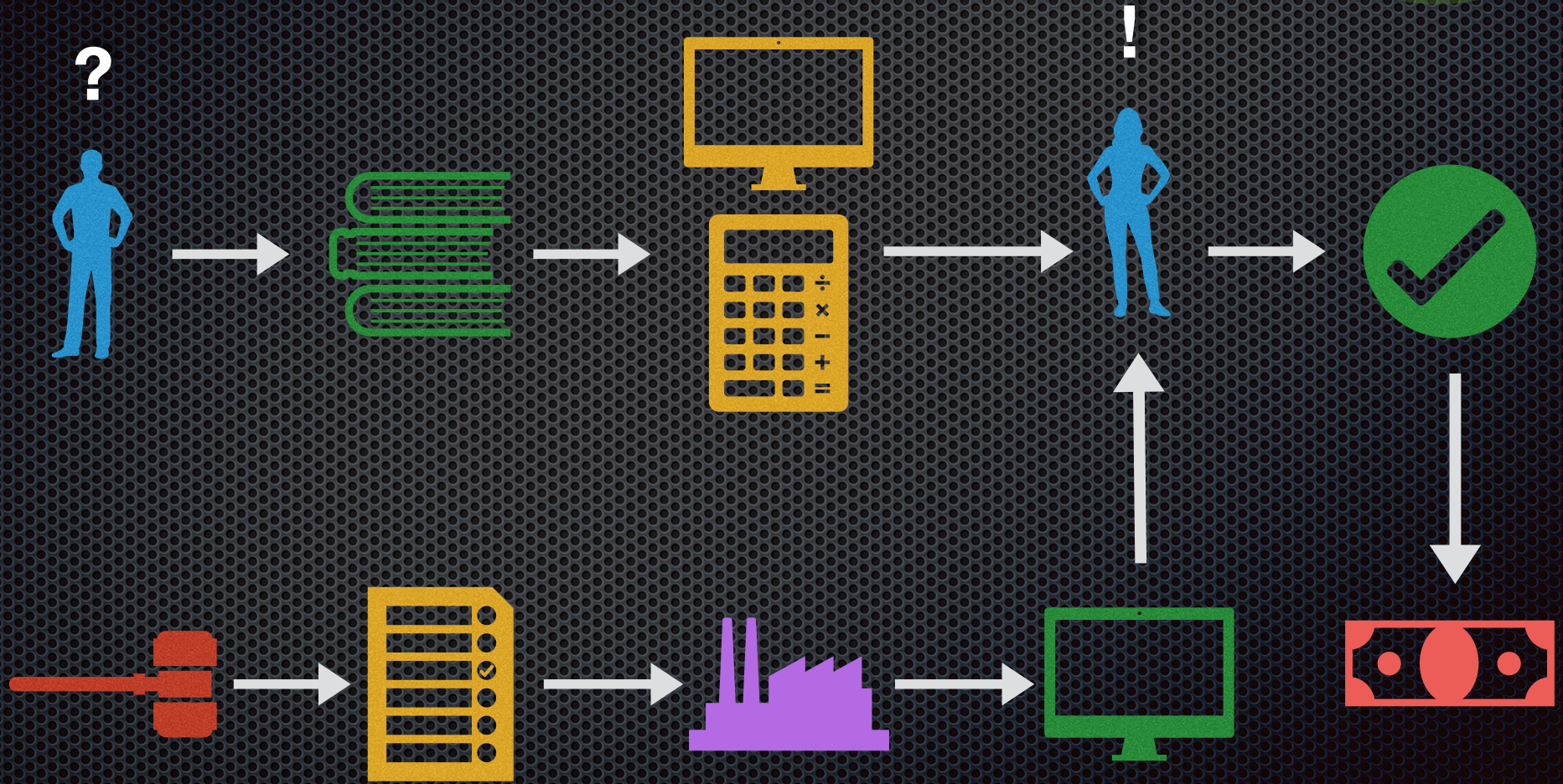


Conclusion

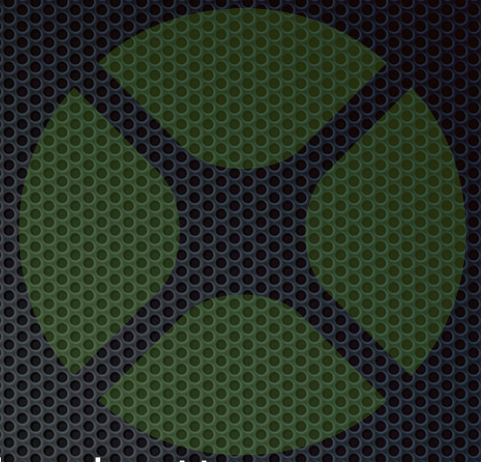
- 30 Years later
- Hundreds of customers later
- How we create Applications
- The Lego[®] Story
- The Database
- Effort for maintenance



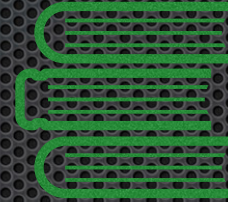
How



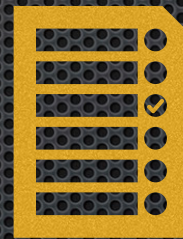
Rules of the Game



- The more systems you already have made the better your company will work



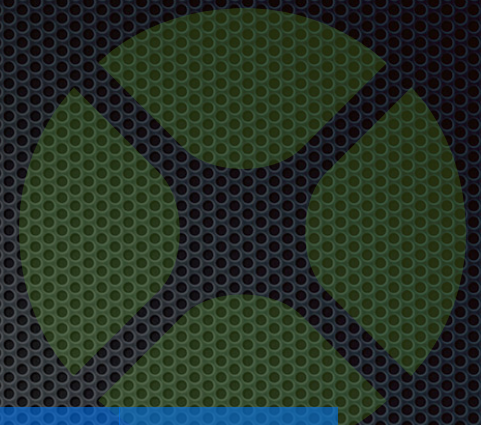
- The more structure and systematics you use the easier the adaptations will be



- The more work is done inside the framework the less work is left

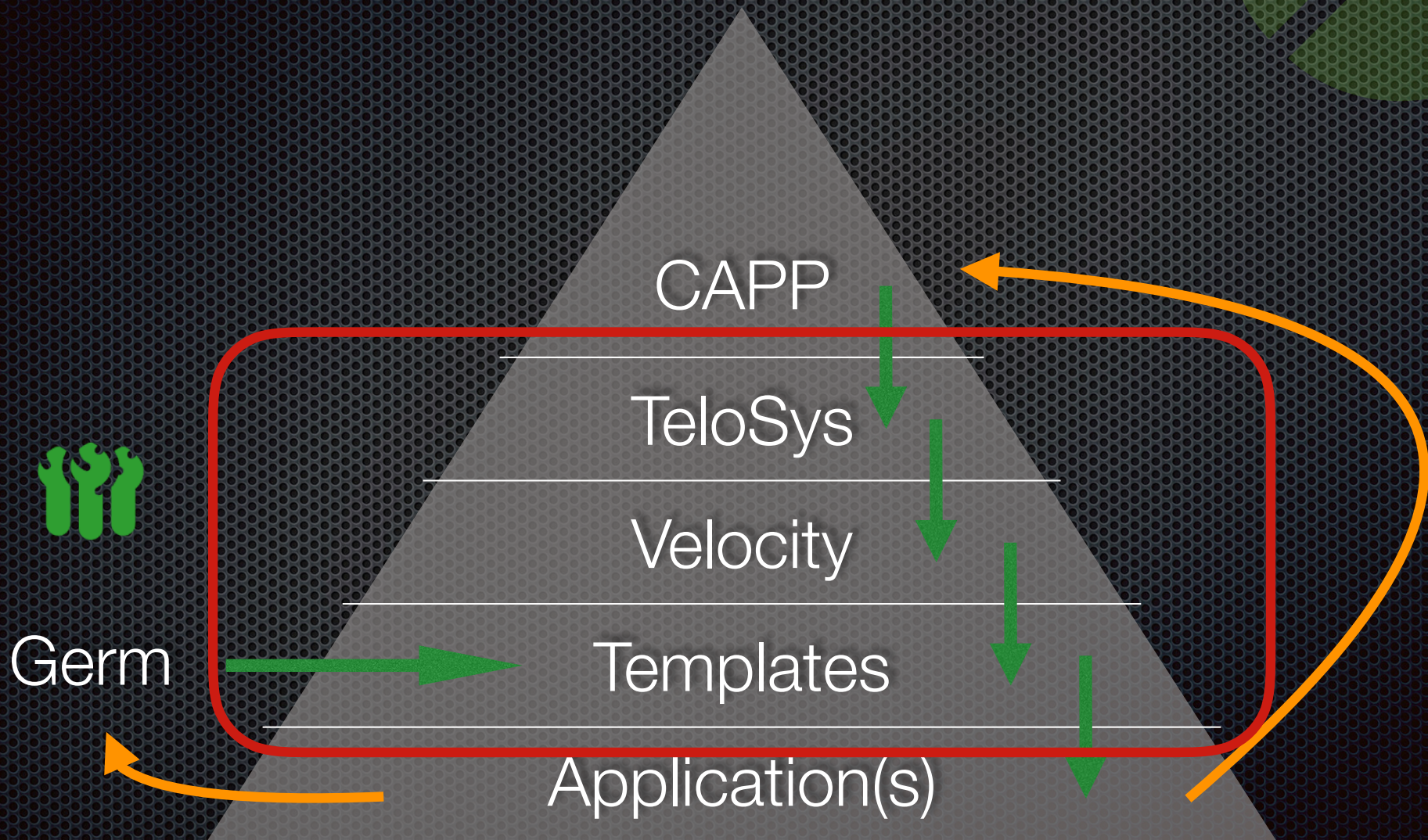
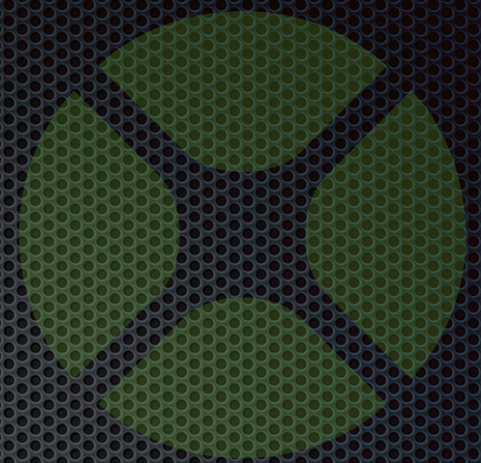


Today's Tools

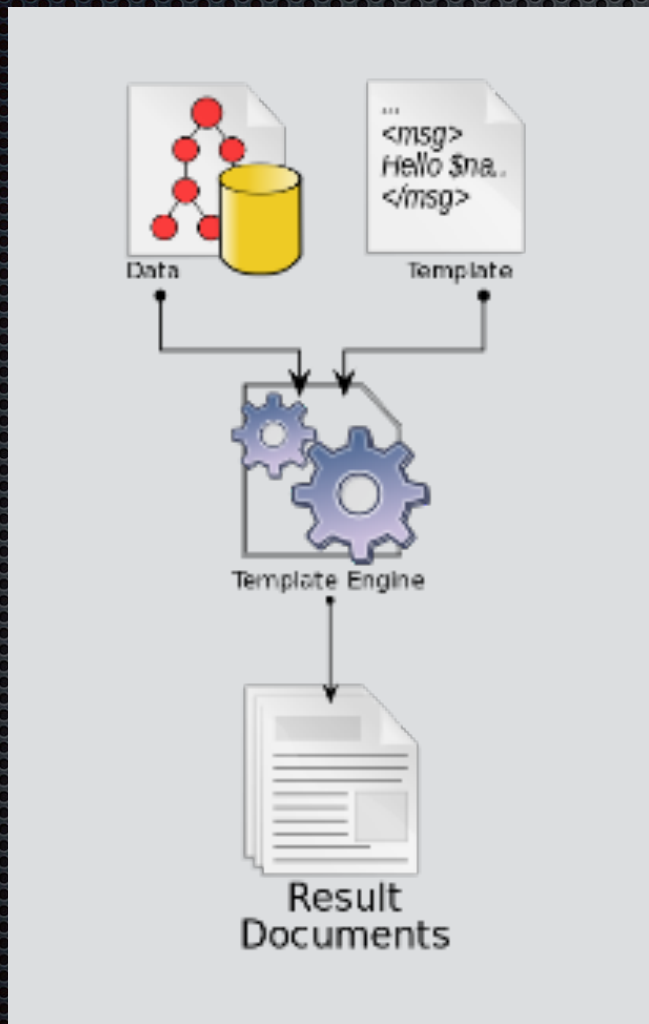
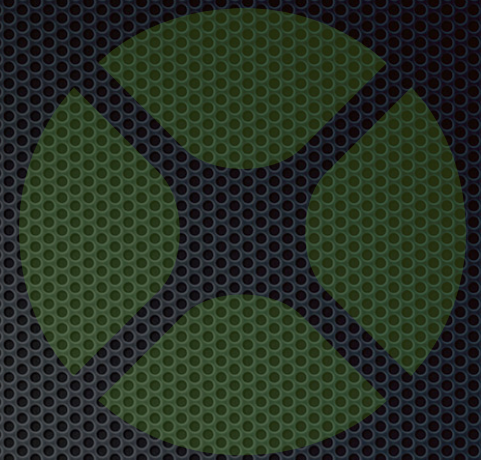


	Ease of use	Database centric	Two Way	Robust	Fast	Multi-Platform	Generator	Controllable
Clarion	Medium	Yes	Yes	No	Yes	No	Yes	Yes
WinDev	High	Yes	No	Yes	No	Yes		No
VS	Low	No	No	No	Yes	No	Yes	Yes
Xojo	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Proposed Structure



Template Engine



https://en.wikipedia.org/wiki/Template_processor

System Requirements

- Java[®] System Development Kit (JDK)
- MySQL[®] Server
- MySQL[®] Workbench
- Sakila demo database with data
- Any other test data in MySQL
- CAPP Community Edition
- XOJO, saving transparent as „Xojo Project“



Apache Velocity

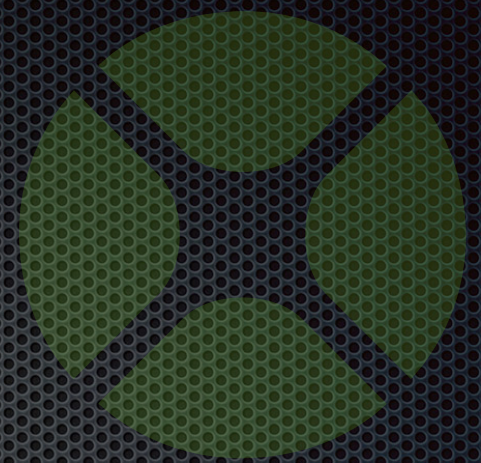
- Open Source
- Java Project
- Very Mature
- In good maintenance
- Template Language (Syntax highlighting)
- It has a „Context“



<http://velocity.apache.org/>

<http://velocity.apache.org/engine/1.7/user-guide.html>

Velocity Syntax



- `#set ($foo = „test“)`
- `#if ($foo == „test“) Yes #else No #end`
- `#if ($foo == „test“)Yes#elseNo#end`
- `#foreach ($field In $entity.Attributes) $field #end`
- `#include („parameter.vm“)`
- `#parse („fields.vm“)`
- `#evaluate ($somecontent)`
- `#macro (embed $place)`

Velocity Tradeoffs



- It's in Java
- Two diseases I have :
 - Semikolophobia
 - Brackallergy
- Debugging is difficult
- Syntax is very „sensitive“
- Required Environment
- It's in Java



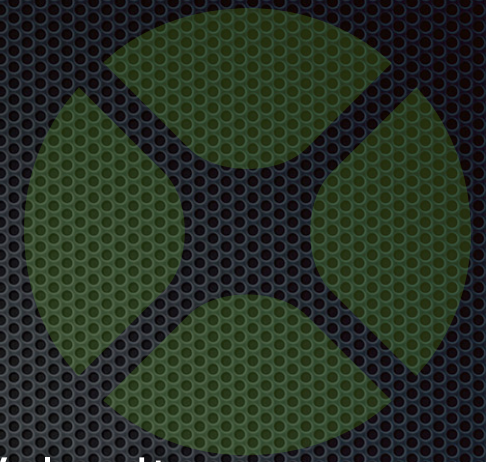
Velocity Artefacts



- Input files (also called **context**) in different formats
 - Direct SQL connection to nearly all common systems
 - XML definitions as flat files
 - ASCII flat files
- Templates in the destination language
- Template Engine generating output code
- Result Documents



TeloSys



- Open Source Command Line Interface for Velocity
- Written also in Java



TELOSYS

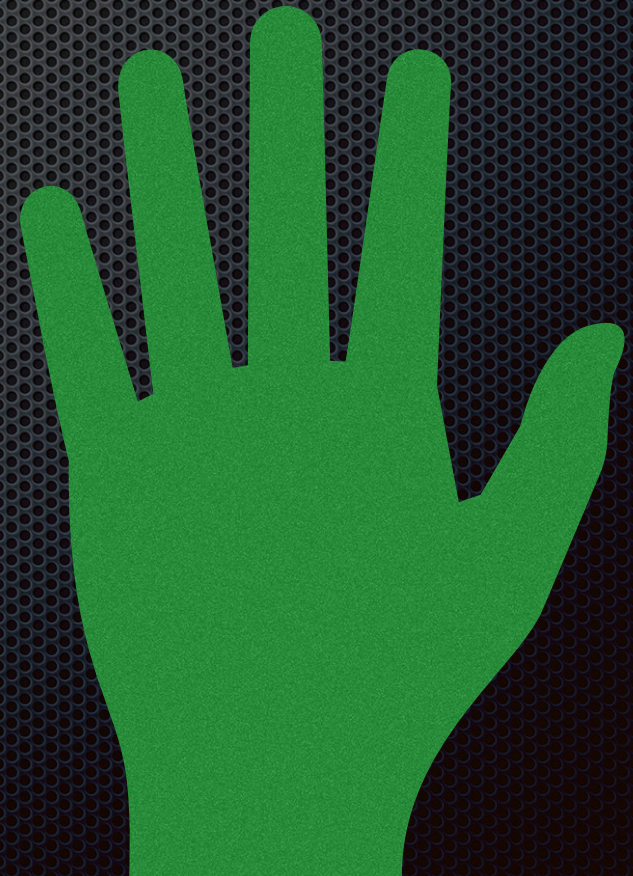
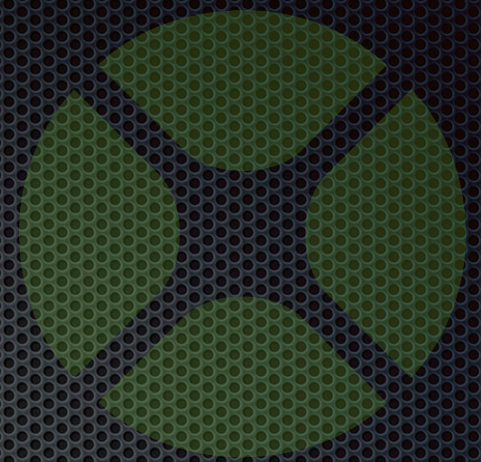
- Can be controlled via a console window
- Uses some tools to prepare the context
- Offers lots of variables to work with

- TeloSys is called from CAPP

<https://www.telosys.org/index.html>

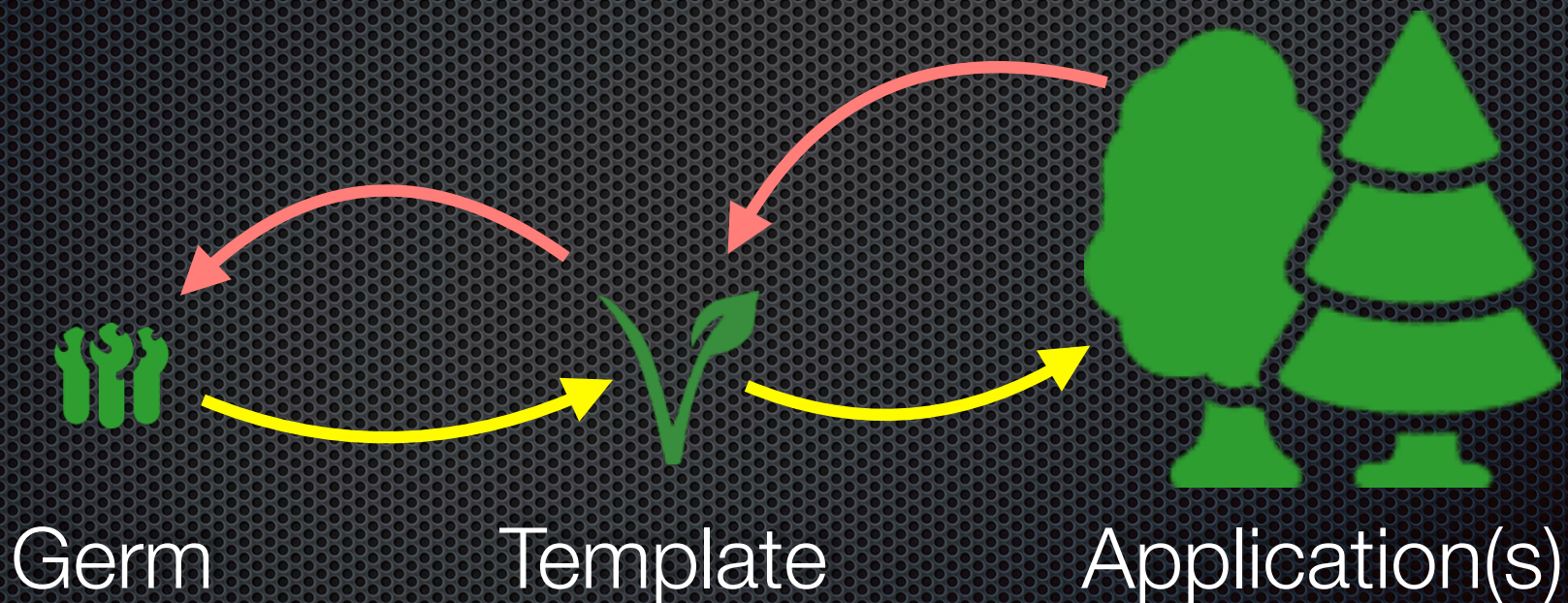
Demo 1

- Call up Telosys
- Set „home“ directory
- Show „help“
- Set a context
- Generate sample code



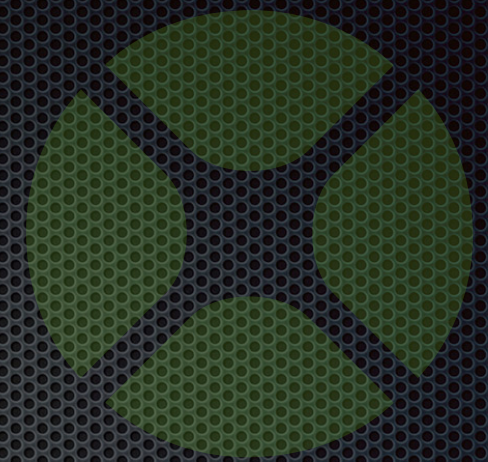
The Germ

- No - it's not a joke ;-)



The Germ

- Simple Sample Code (Open Source) with
 - Minimum redundancy
 - Complete functionality
 - One instance for each desired function
 - Only one entity for test purposes
- Pure Xojo code without plugins

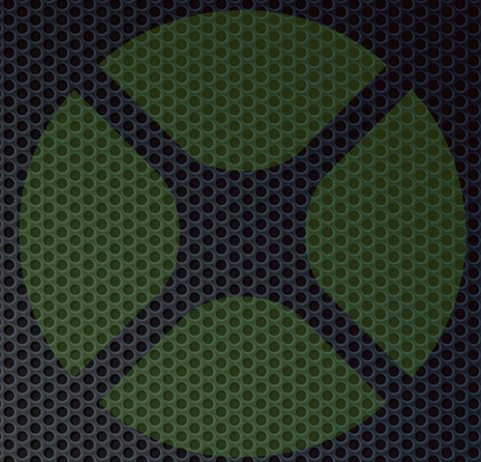


Demo 2

- Open Xojo
- Show code for CAPP-Germ
- Run the germ
- Show basic functionality
- Explanation why this is VERY important



The Templates

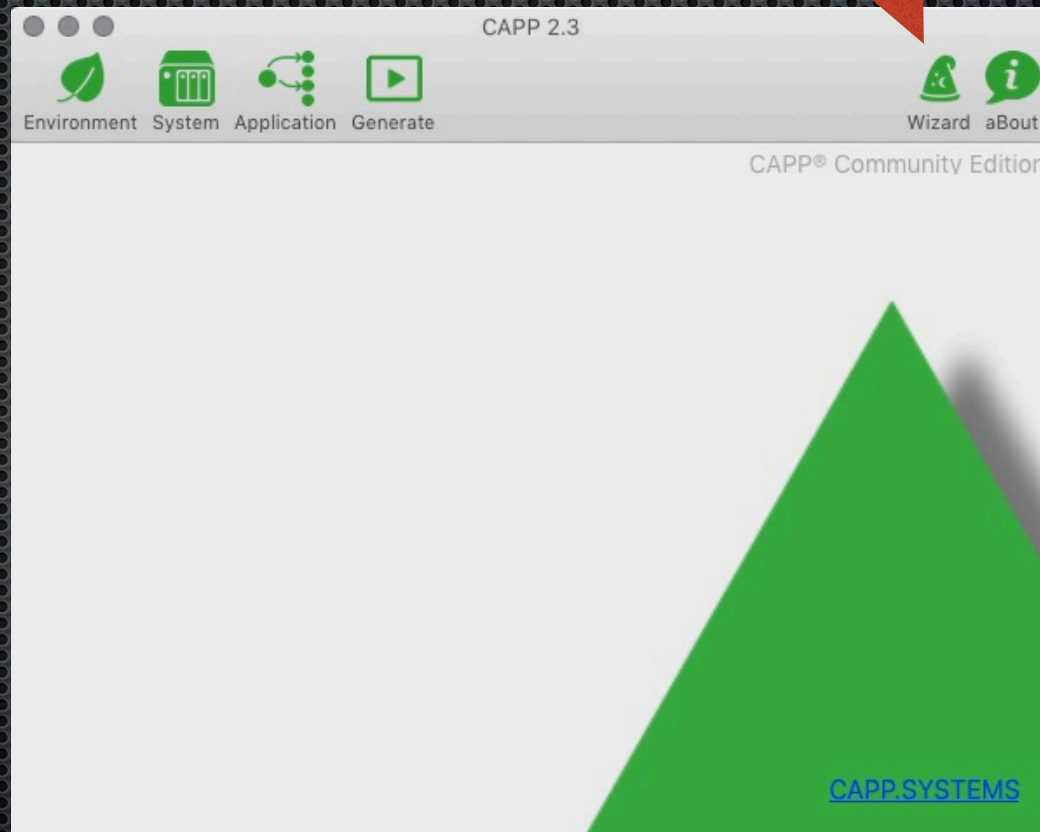


- `main.vm` Generates the Main Xojo Window
- `code.vm` Generates the `xojo.code`
- `resources.vm`, `globals.vm`, `project.vm` you guess it
- `menu.vm` Uses the App structure to make the menu
- `table.vm` Generates one table window per entity
- `record.vm` Generates one Editmask per entity

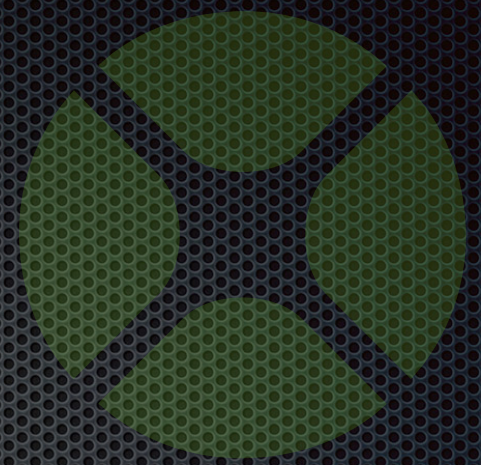
- `doc.vm` Generates the documentation as `.md`

CAPP Main Screen

- Calling CAPP
- Controls
 - Velocity
 - Telosys
 - Templates
 - Output



CAPP Directories



Database

./in

./ctl

./out



./bin



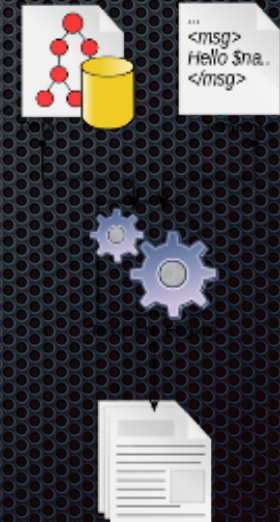
CAPP Module View

The screenshot displays the CAPP Module View interface, which is organized into four main sections: Control, Input, Embeds, and Output.

- Control:** Contains several configuration elements:
 - A green briefcase icon next to a text field labeled "Tables".
 - A green tree icon next to a text field containing the number "7".
 - A green radiation symbol icon next to a dropdown menu labeled "Multiple".
 - A green speech bubble icon next to a text field containing "Something".
 - A "Template Engine" icon consisting of three interlocking gears, with an arrow pointing to a dropdown menu.
 - Below the "Something" field, the text ": Weird" is displayed.
- Input:** Shows data sources and templates:
 - A database icon connected to a "Data" field containing a red molecular structure icon and a yellow cylinder icon.
 - A DNA double helix icon connected to a field labeled "table.vm".
 - A "Template" field containing the code:

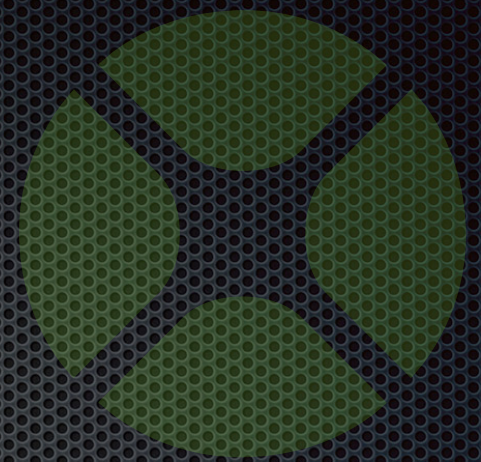
```
<msg>
Hello $na.
</msg>
```
- Embeds:** Displays the result of processing:
 - An icon of three green circles with arrows, followed by an ellipsis "..."
 - The text "TABLE After setting fields" is shown below.
- Output:** Shows the final result:
 - A green document icon connected to a field labeled "Table_*.xoyo_window".
 - An arrow points from the "Embeds" section to a "Result" field, which contains a document icon.

At the bottom of the interface, a status bar reads: "Parameters set for current module Tables".

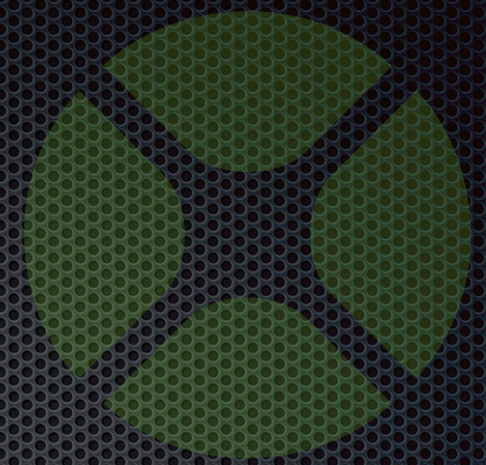


Demo 3

- Open Capp
- Call Wizard
- Show the windows
- Explain the Module Window
- Show empty directory
- Call „Generate“
- Open App in Xojo
- Run it

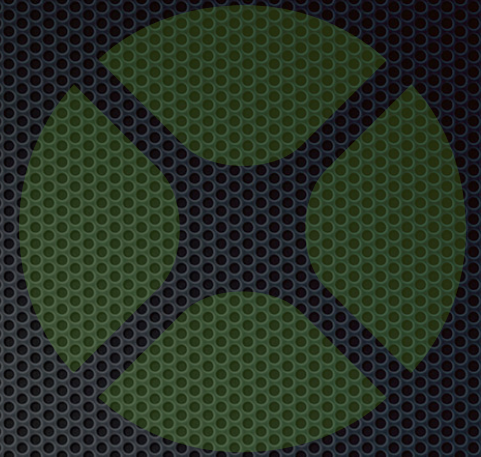


Variables



- Variables are used to assign values
 - to dedicated modules
 - for dedicated entities
 - for the complete system
- They can be set in the CAPP environment
- They will appear as Velocity Variables automatically

CAPP Module View



Module

Control

- Tables
- 7
- Multiple
- Something : Weird

Input

- *
- table.vm

Embeds

- TABLE After setting fields

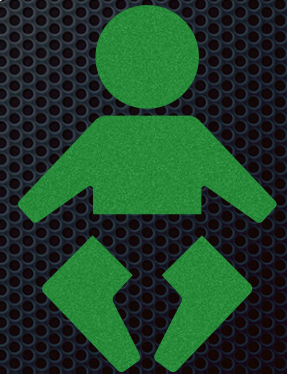
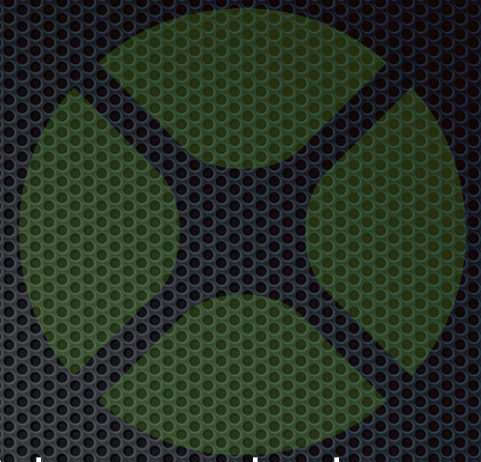
Output

- Table_*.xoyo_window

Parameters set for current module Tables

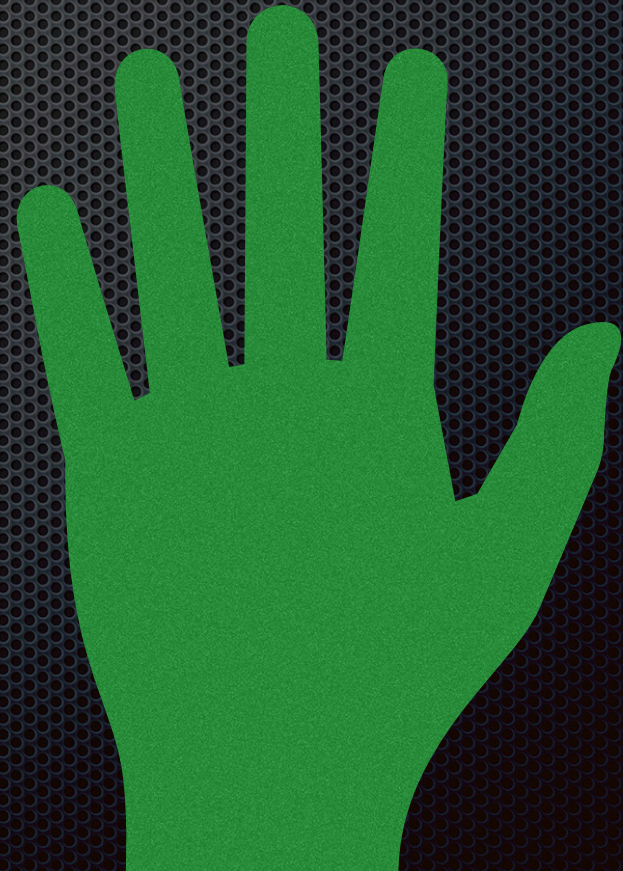
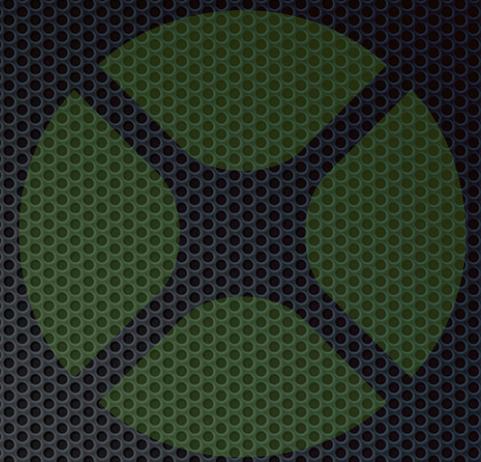
Embeds

- An Embed is a code snippet placed where it is needed
- Setting „Marks“ in the Germ / Template
- Getting all Embeds out of the assigned template
- Templates are in Database
- They are „re-used“ in case of „re-generation“
- Template Change or Modification causes „Orphans“



Demo 4

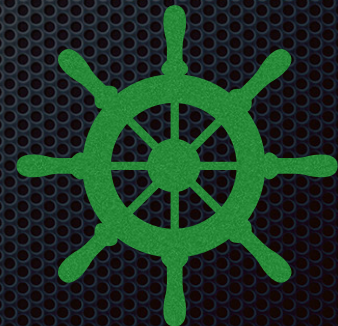
- Open Capp
- Fill an Embed
- Use a Variable
- Call „Generate“
- Open App in Xojo
- Run it



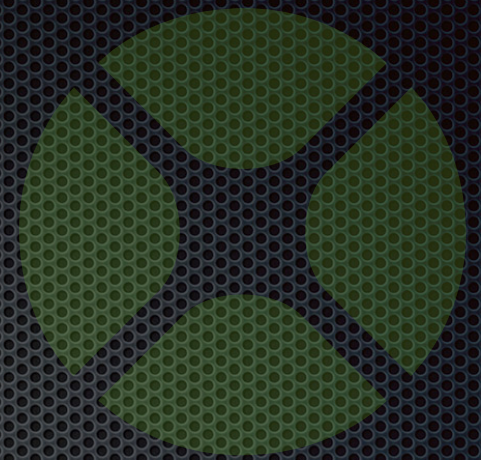
7 Ways to Control

1. Templates as a Framework
2. System Parameter set in CAPP
3. Module Parameter set in CAPP
4. Module Variables defined in Template
5. Field Parameter (*) set in DB Comment
6. Field Attributes (*) defined in Template
7. Embeds defined in Template

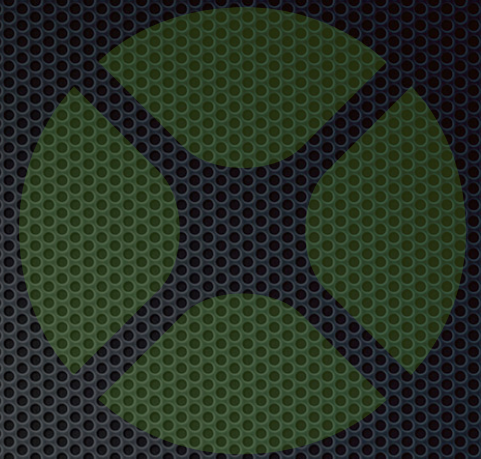
(*) only in Versions higher than „Community Edition“



Baron Münchhausen



Two times the Baron

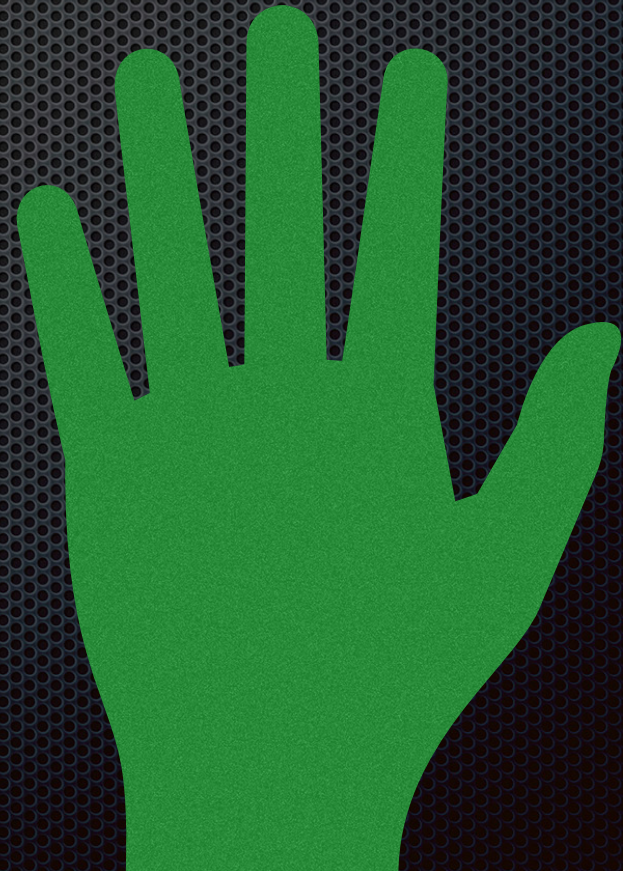
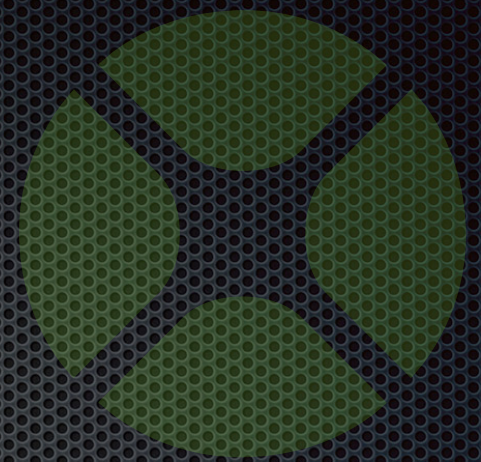


- Write something into a tables comment field
 - use this as code
 - **interpret the code as function**
 - use the function in the template
 - place it where it belongs
- Write an Embed
 - Generate the code
 - Modify the **generated** code
 - Get back the embedded code in the CAPP database



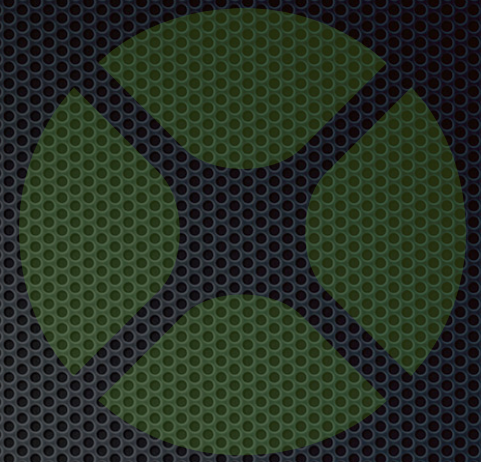
Demo 5

- Open Database Editor
- Set a comment field with a command
- Open CAPP
- Call „Generate“
- Open App in Xojo
- Run it
- Change an Embedded code
- Get it back into CAPP



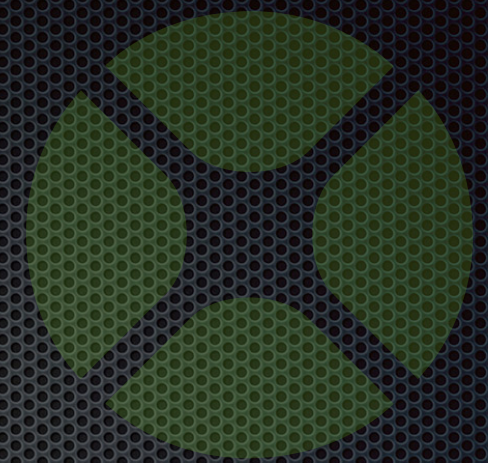
License

- CAPP Community Edition (CAPP-CE)
 - is open source (in Xojo)
 - runs under Apache License V.2
 - contains Velocity and TeloSys completely
 - offers free and customisable templates for Xojo
- Data is stored in an open SQLite file



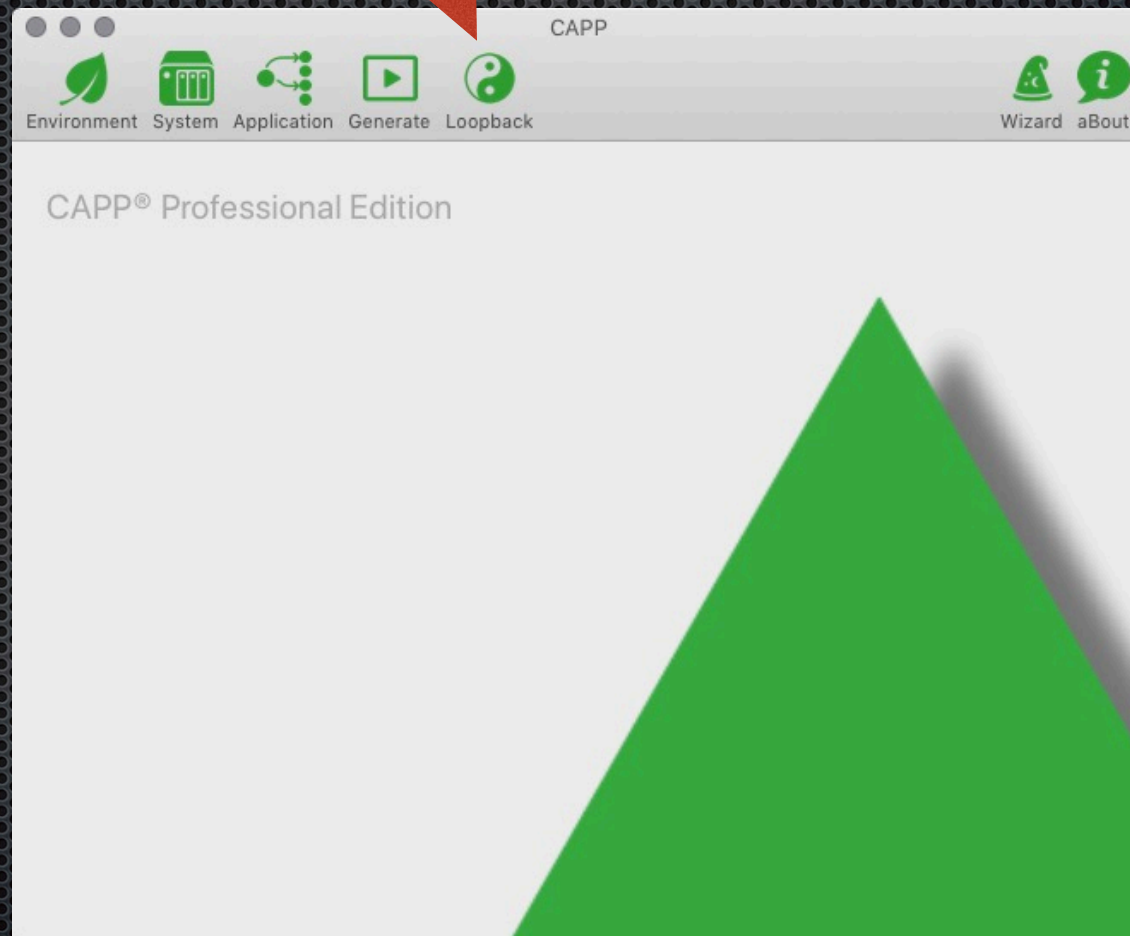
Why OPEN ?

- Rule Number 1 : Never ask WHY
- HOW can CAPP evolve?
 - Only with a community and its contribution
 - Only transparent and free
 - Only Open
- WHO will help?
 - Everyone interested in improving efficiency

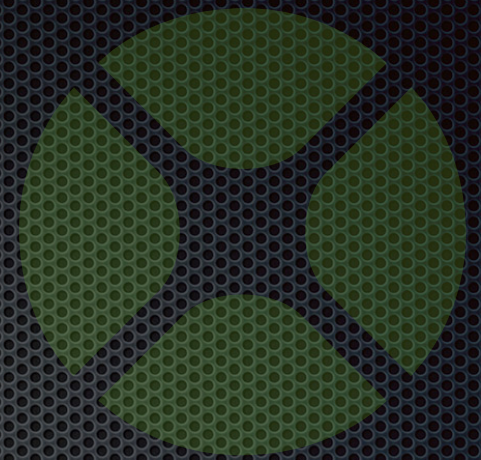


CAPP - PE

- DB Variables
- DB Parameter
- LoopBack



Other Licenses

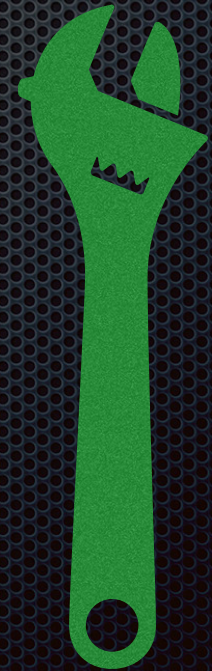
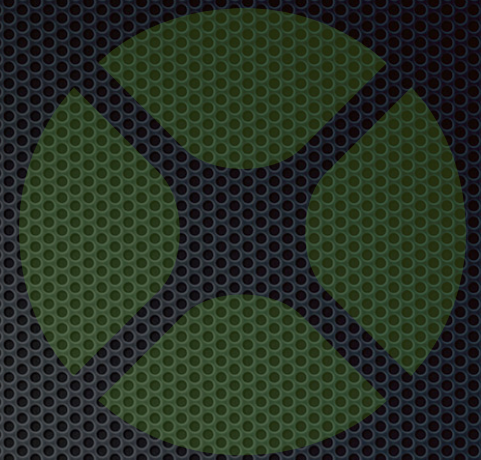


- CAPP Professional Edition (CAPP-PE)
 - One-time buy license with additional features
- CAPP Business Edition (CAPP-BE)
 - Same as PE on a monthly basis
- CAPP Enterprise Edition (CAPP-EE)
 - CE with full support on a monthly basis



Wrap Up

- We have a Database (from the customer?)
- We generate 80-90% of the code
- We concentrate on the more important parts
- We take care not to compromise the Germ
- We always work „two-way“
- We enable the unexperienced to get the LHF
- We (hope to) lower Xojo's entry barrier



How to get CAPP

Go to capp.systems

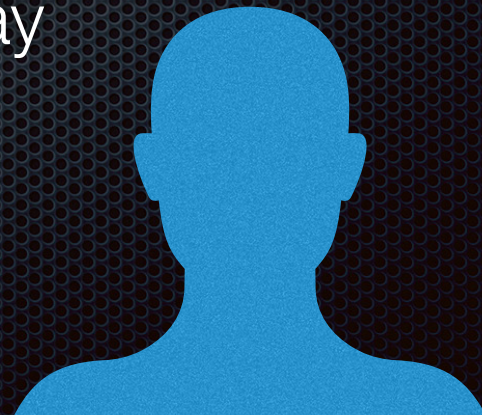
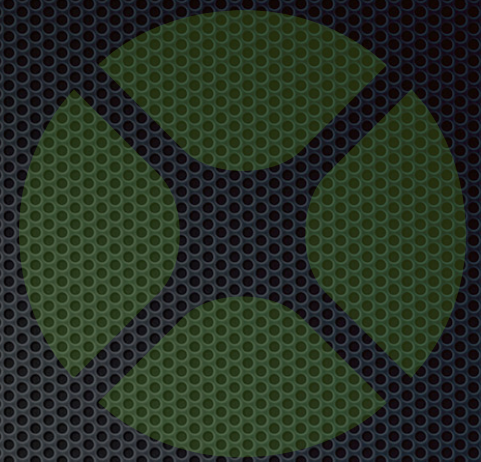
Goto "Try or Buy"

Decide Community vs. Professional (30 Days Test)

Download and Install (see Quickstart)

Voucher Code 50% valid until end of May

XDC2019MIAMI

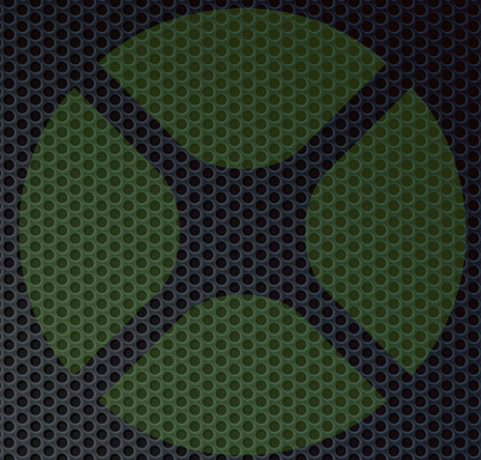


Just do it !

- Download
- „Wizard“
- Press „Generate“
- Go to „./out“
- Open in Xojo
- Run
- Play
- Repeat



$$A = X + Y + Z$$



Q & A

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www.linkedin.com/in/mickdettmer

Thank you very much for your attention

Give us feedback on this session in the XDC app!

