

Teaching Moldable Development

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What is Moldable Development?

Moldable development supports decision making by making domain concepts *explainable*.

Exploring the ESUG website

an EsugWebsite (https://esug.github.io)

Pages Links Missing links HTTP links Broken HTTP links Missing status Reachable pages Unreachable pages Map Raw Print Meta

Index	Title	Path	Pillar links	Markdown lin
1	About Us	/about_us.pillar	12	
2	Your Article	/article.pillar	5	
3	Become a Sponsor	/become_sponsor.pillar	4	
4	Companies	/companies.pillar	100	
5	Conferences	/conferences.pillar	10	
6	DVD	/dvd.pillar	1	
7	FreeBook	/freebook.pillar	2	
8	<no title>	/host_esug_events.pillar		
9	<no title>	/index.pillar	22	
10	<no title>	/membership.pillar	3	
11	Your Mobility	/mobility.pillar		
12	Past Actions	/past_actions.pillar	20	
13	Press	/press.pillar	11	
14	<no title>	/previous_actions.pillar	74	
15	Process Details	/process_details.pillar		
16	Your Project	/project.pillar		
17	Promotion	/promotion.pillar	9	
18	Promotion Award	/promotion_award.pillar	2	
19	Your Publication	/publications.pillar	27	
20	Smalltalk	/smalltalk.pillar	6	
21	Archive	/smalltalk_archive.pillar	1	
22	Sponsors	/sponsors.pillar	1	
23	SummerTalk	/summerTalk.pillar		
24	Support	/support_esug.pillar	3	

Moldable Development Patterns

express best practices in the process of molding software to make it explainable.

Pattern: Moldable object

Would you rather be here?

Class

PillarWebsite

Superclass: AWebsite Package: GToolkit-Demo-WebsiteExplorer Tag: Model

Methods Comment References Advice def

cleanJson:

gtPagesFor:

initializePages

navigationRoots

or here?

an EsugWebsite (https://esug.github.io)

Pages Links Missing links HTTP links Broken HTTP links Missir

Index	Title	Path
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5	Conferences	/conferences.pillar
6	DVD	/dvd.pillar
7	FreeBook	/freebook.pillar

Pattern: Viewable data wrapper



Start by grabbing your data.

```
repoDir := FileLocator ▶ imageDirectory ▶ /
'esug.github.io'.

"Clone the repo if we haven't already done so."
repoDir exists
  iffalse: [ repo := 'git@github.com:ESUG/
esug.github.io.git'.
            repository := IceRepositoryCreator ▶ fromUrl:
repo to: ▶ repoDir ].
repoDir
```

Wrap it in a new class.

```
EsugWebsiteWrapper ▶ new ▶ repoDir: ▶ repoDir
```

Add views to answer questions about the data.

```
EsugWebsite ▶ instance ▶
```

Pattern: Contextual playground



Start by inspecting an instance.

```
EsugWebsiteWrapper ▶ new ▶ repoDir: ▶ (FileLocator ▶  
imageDirectory ▶ / 'esug.github.io')
```

Code directly in the Playground:

Variable	Value
self	an EsugWebsit
▶ repoDir	{imageDirecto

```
repoDir allChildrenMatching: >  
'*.*pillar|'
```

Extract useful code as methods, examples or tests.

Pattern: Viewable Entity



We inspect the ESUG website and navigate to the pages ...

The screenshot shows a browser's developer console with a table of variables and a code editor snippet. The table has two columns: 'Variable' and 'Value'. The first row shows 'self' with the value 'an EsugWebsit'. The second row shows 'repoDir' with the value '/Users/oscar/'. Below the table is a code editor snippet with the text 'self pages' and a right-pointing arrow. The code editor has a toolbar with icons for back, forward, search, and refresh. The file path 'Documents/lepiter/default' is visible at the bottom of the code editor.

Variable	Value
self	an EsugWebsit
repoDir	/Users/oscar/

```
self pages
```

Documents/lepiter/default

We like this and want to make it a custom view.

```
gtPagesFor: aView  
<gtView>  
^ aView forward  
title: 'Pages'
```

nil

Moldable Development patterns

▼ Moldable Development patterns # A Patter

Moldable object #Problem#Forces#Sol

Viewable data wrapper # Problem# For

Contextual playground # Problem# For

Viewable Entity # Problem# Forces# Sol

Custom action # Problem# Forces# Sol

Unifying the development flow

▼ Glamorous Toolkit and Pharo Glamorous Too

A code size analysis Currently, the GT code

▼ One rendering tree A slideshow about one rer

Geometry, visual and layout bounds explain

How Mondrian relates to Bloc [[Mondrian]

▼ How to ... These pages provide answers to man

How to get started with Moldable Developmen

▼ How to troubleshoot GT # TL;DR#Troublesho

What to do when GT hangs? This typically

How do I recover my work after a crash? C

What to do if GT is becomes slow and unres

I can't load or commit to repos. What's wron

What can I do if my repository is detached an

What should I do if I get an error during Lepit

How do I add a Lepiter database to an existin

▼ How to work with Lepiter A set of how tos rela

▼ How to get started with Lepiter (FAQ) [[Lep

How to create a Lepiter page? You can c

Where are my pages stored? Lepiter pag

How do I add new snippets? Normally y

How do I move snippets around within a l

How to format text in Lepiter pages? Te

How do I rename a Note? Just click on t

How do I find my pages? You can open

How do I move a page to a different datab

How do I search within a Lepiter page?

How do I create a Table of Contents for a l

How do I move a bunch of snippets from c

A Pattern Language for Moldable Development

[Moldable Development](#) ▶ is a way to support decision-making by molding the development tools and environment to your problem, thus making the domain concepts visible, explorable, and *explainable*. For an introduction, see [How to get started with Moldable Development](#) ▶ .

A good way to learn about moldable development is to focus on the *patterns* we observe when practicing it. Each of the patterns below addresses a *problem* to be solved, there are *forces* at play that motivate the application of the pattern, there is a *solution*, and *steps* to implement the pattern. Finally, there are *related patterns* that may be applied before, during or after the steps.

Overview

Moldable development works best when you incrementally extend a live model with custom tools as you explore it. You can start the exploration and molding process from a [Moldable object](#) ▶ , a live instance of a key domain entity, even at the very beginning of a new project. If you are analyzing existing data, you should start with a [Viewable data wrapper](#) ▶ .

Once you have a moldable object to explore, you can leverage its [Contextual playground](#) ▶ to prototype new behavior and custom tools.

As you are developing the live model, you may find yourself repeatedly performing the same sequences of navigation steps to access information, either by clicking

What works?

Live documentation

Working with a REST API: the GitHub case study

Glamorous Toolkit allows you to work with REST APIs out of the box. Here, we take a look at how we can play with the GitHub REST API.

Here is the github JSON content located at <https://api.github.com/orgs/feenkcom>:

```
{
  "public_members_url" : "https://api.github.com/orgs/feenkcom/public_members{/member}",
  "is_verified" : false,
  "name" : "feenk",
  "archived_at" : null,
  "avatar_url" : "https://avatars.githubusercontent.com/u/22122366?v=4",
  "type" : "Organization",
  "node_id" : "MDEyOk9yZ2FuaXphdGlvb2IyMTIyMzY2",
  "twitter_username" : "feenkcom",
  "updated_at" : "2022-04-25T17:45:00Z"
```

The first thing we do is to get that JSON programmatically:

```
url := 'https://api.github.com/orgs/feenkcom'.

json := ZnClient new get: url.
```

Now, that's just a string. We'd rather parse it:

```
dictionary := STON fromString: json.
```

Glamorous Toolkit Book

Building a community with Discord

The screenshot shows a Discord server interface for "Glamorous Toolkit". The left sidebar lists various channels, with "# feedback" selected. The main chat area shows a message from Daniel | Engineering Manager, dated August 4, 2023, at 11:17 PM. The message reads: "It was a pleasant surprise to have the 'human readable' version already built in for a Duration object 😊". Below the text is a screenshot of a Scratchpad Playground showing code and its output. The code includes a function to create a Duration object and a test case. The output shows a table with human-readable and machine-readable values for days, hours, minutes, seconds, and milliseconds. A heart icon with the number 2 is visible below the message. At the bottom of the chat area, there is a message from botwhytho, dated August 15, 2023, at 7:41 AM, which says: "Not a complaint, but seems like I missed this change, why/when did search filters become a composite tool as opposed to only an inspector with a". The interface also shows a search bar at the top right and a user profile for Oscar Nier... at the bottom left.

Glamorous Toolkit # feedback Provide feedback. Ask for f... Search

August 4, 2023

Daniel | Engineering Manager 08/04/2023 11:17 PM
It was a pleasant surprise to have the "human readable" version already built in for a Duration object 😊

```
01 Scratchpad Playground
```

```
getLink getProgram =  
00 descriptionDownInExamples = new classHierarchyFor = Association = with(15SubClasses =  
0122 terminalProcessableFlow = new =  
  command = "cat";  
  args = ["array", "with", "1", "with", "1", "1"];  
  output =  
STATE 10 DateAndTime = readFrom = (readStream = out = "2023-08-04T11:15:14Z")  
end := DateAndTime = now =  
end := await
```

Key	Value
human readable	8 minutes 3 seconds 502 milliseconds 434 microseconds
days	0
hours	0
minutes	8
seconds	3
milliseconds	502
microseconds	434

2

August 15, 2023

botwhytho Today at 7:41 AM
Not a complaint, but seems like I missed this change, why/when did search filters become a composite tool as opposed to only an inspector with a

Oscar Nier... Online

Short videos on specific topics

Getting started with GT in 7'

We show how to get started with a variety of tools built into GT, and show how these tools support moldable development.

Getting started with GT in 7' Glamorous Toolkit



See also:

- [A tour of the environment](#)
- [How to get started with Lepiter \(FAQ\)](#)
- [How to get started with Coder \(FAQ\)](#)
- [How to work with GitHub](#)

Glamorous Toolkit Book

ToC Pages

+ Q

Getting started with GT in 7' We show how to get started with
Exploring the GitHub REST API in 7' We show how an explor
Inspecting objects with custom views in 7' Every object in [E
Understanding Lepiter in 7' [[Lepiter]] is a programmable a
How to find stuff in GT in 7' We show how to query and expo
Smalltalk Syntax in 7' [[Glamorous Toolkit]] is built in [[P...
How to set up a GT GitHub repo in 7' You can use [[GitHub]] t
Scripting, linking, documenting: Lepiter overview This very bo
Handling objects: Inspector overview An [[Inspector]] is the mo
Managing code: Coder overview [[Coder]] is the interface for ma
Basic shortcuts The shortcuts of a method coder are a...
▼ Case studies of Moldable Development [[Moldable Development]]
Working with a REST API: the GitHub case study Glamorous Toc
Browsing the OpenAPI description of GitHub [[OpenAPI]] offers
Exploring GitHub through GraphQL Glamorous Toolkit has built
Exploring your Twitter data Twitter allows you to download you
Working with AT Protocol The [AT Protocol](https://atproto.com)
Editing Rust sources through the Language Server Protocol [[GL
Analyzing JavaScript React Native: the Zooniverse case study Z
Analyzing Ruby on Rails: the Whitehall case study [[Analyzing Ja
Analyzing feature toggles from a Python project: the Open edX ca
Visualizing yarn.lock files using JavaScript and Pharo [Yarn](htt
Documenting the domain: the Ludo game case study [[Moldable
▼ Glamorous Toolkit as a case study [[Glamorous Toolkit]] itself is
Quantifying the need for custom tools This is a [[Treemap]] c
Explaining the squarified treemap algorithm As part of the vi
Explaining the text editor's selection mechanism The selecti
Optimizing the links in the book for first time readers Writing
Testing user interactions: the Spotter case study Testing use
Detecting the correct positioning of a dropdown We had an i
Identifying an editor bug by inspecting wrapped Rust objects
▼ PetitParser SPL case study #TL;DR#Outline[[PetitParser]] is a tc
PetitParser SPL case study slideshow This is the slideshow fr
SPL ##TL;DR#Language features#Example pro...
Parsing SPL tokens #TL;DR#Booleans (choice)##Integers (s...
Debugging SPL grammar rules #TL;DR#Debugging expressio
Extracting a class from a PetitParser script #TL;DR#The comp
Testing a PetitParser class #TL;DR>Note that we have first ful
Using PetitParser to build an AST #TL;DR#Adding PetitParse
Implementing an SPL interpreter #TL;DR#Operational sema
SPL Facade #TL;DR#SPL Facade#SPL demosWe demonst...

Challenges

People hate change

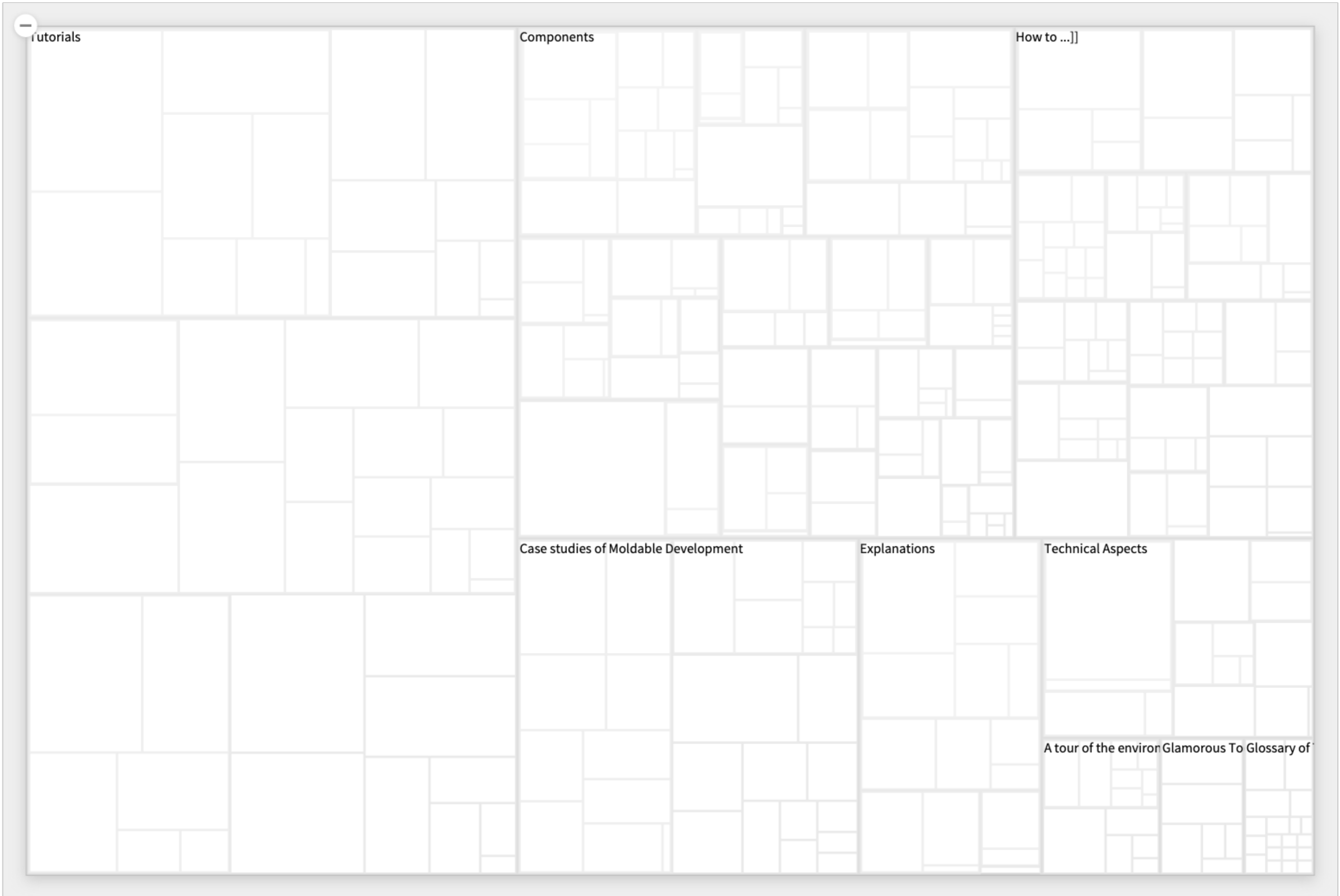
The screenshot shows an IDE window with a package hierarchy on the left and a class view for **PillarWebsite** on the right. The class view shows the superclass **AWebsite** and the package **GToolkit-Demo-WebSite**. The methods and properties are listed as follows:

Method/Property	Category
cleanJson:	links, instance
gtPagesFor:	view, instance
initializePages	initialization, instance
navigationRoots	accessing, instance
rootPath	constant, instance
webLinkClass	constant, instance

The screenshot shows a web browser window titled "an EsugWebsite (https://esug.github.io)". The browser displays a table of pages with the following columns: Index, Title, and Path.

Index	Title	Path
1	About Us	/about_us.pillar
2	Your Article	/article.pillar
3	Become a Sponsor	/become_sponsor.pillar
4	Companies	/companies.pillar
5	Conferences	/conferences.pillar
6	DVD	/dvd.pillar
7	FreeBook	/freebook.pillar
8	<no title>	/host_esug_events.pillar
9	<no title>	/index.pillar
10	<no title>	/membership.pillar
11	Your Mobility	/mobility.pillar
12	Past Actions	/past_actions.pillar
13	Press	/press.pillar
14	<no title>	/previous_actions.pillar
15	Process Details	/process_details.pillar
16	Your Project	/project.pillar
17	Promotion	/promotion.pillar
18	Promotion Award	/promotion_award.pillar
19	Your Publication	/publications.pillar
20	Smalltalk	/smalltalk.pillar
21	Archive	/smalltalk_archive.pillar
22	Sponsors	/sponsors.pillar
23	SummerTalk	/summerTalk.pillar

People focus on what they see first



Conclusion

Moldable Development boils down to a set of learnable patterns.

