

Essential

as the base for Web DSLs



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METADDEV

MDE en la industria. RED-DSDM

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METADDEV

Experience

- Metadev, Founder (2016-current)
- OpenAPI Initiative BGB member (2018-current), ISA-Group, University of Seville
- Icinetic, CTO – CRO (2012-2016)
- Capgemini, Software Architect & Manager (2005-2011)
- CARE Technologies, Lead Researcher, SW Engineer (1999-2004)
- UPV, Research Fellowship (1998-1999)



METADDEV

Startup founded in 2016.10 in Sevilla. Self-funded
4 employees **full remote**.

Customers in SFO, London, Madrid, Valencia, & Sevilla



Sectors: banking, fintech, taxes, cloud computing, education,
industrial, SW development, & consulting.

What we do?

- Build tools for creating **DSLs on the Web**.
- Provide the best **high-quality code generation** tailored to customer needs.
- **White-boxed** code-gen. Evolving at the same pace of the architecture of the app.

Design

Import Export

```
1 component Filter
2   event searching(text: string)
3
4   layout = Horizontal
5   label
6     text = "Filter:"
7   textbox tSearch
8     value = "sample"
9   button bSearch
10    text = "Search"
11    click() => search()
12  button bClear
13    text = "Clear"
14    click() => clear()
15
```

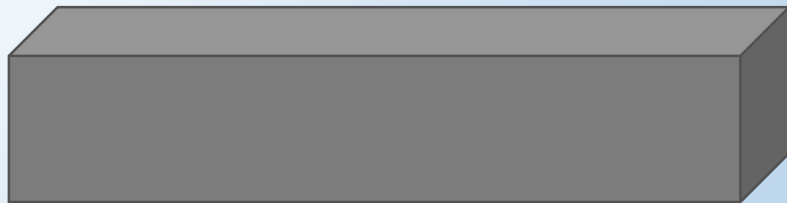


Separation of Concerns (SoC)

Know-How captured in two separated buckets:

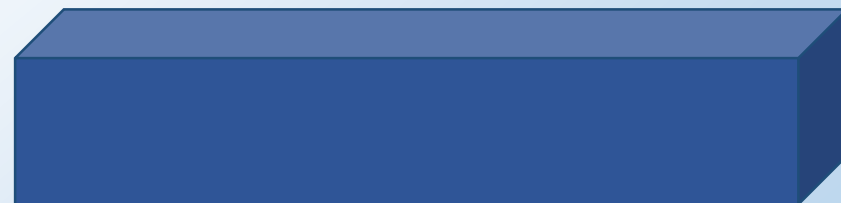
What

- **Business Know-How:**
captured in form of models
(**specifications**): isolated from
technological issues

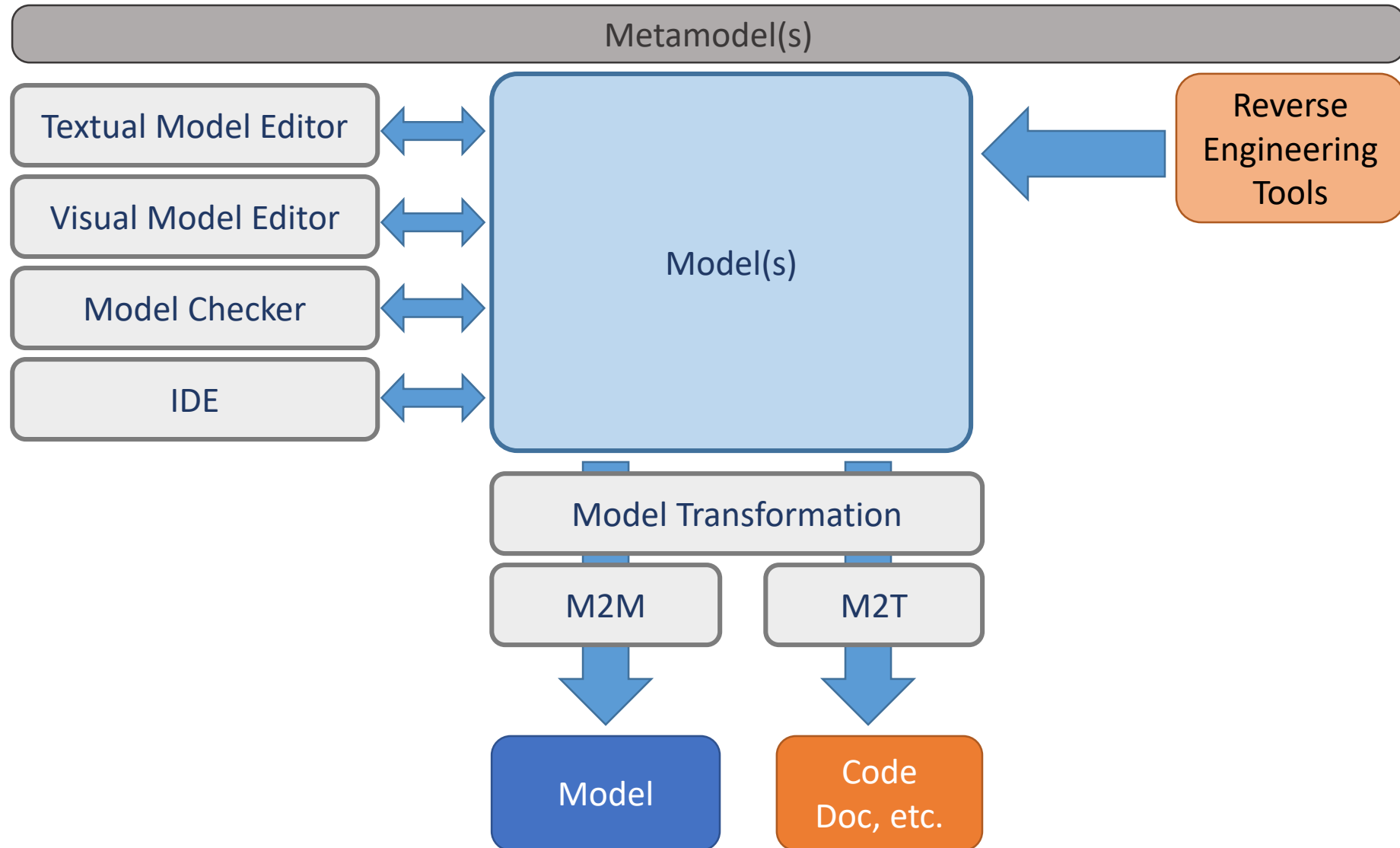


How

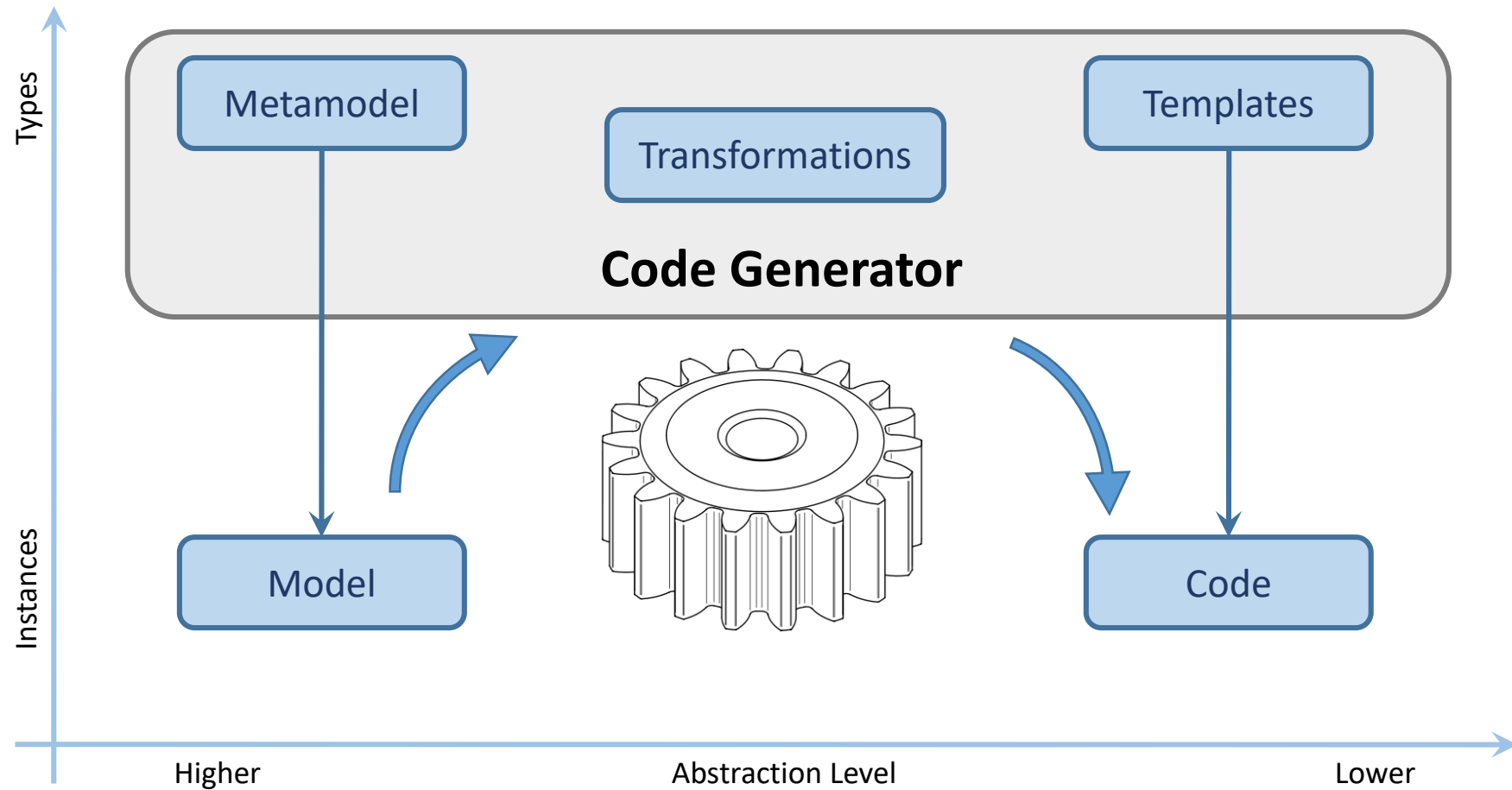
- **Technological Know-How:**
captured & encapsulated in form of
best practices, frameworks,
templates & code patterns in code
generators & interpreters.



Tooling matters



Conceptual Map for **Code Generation**

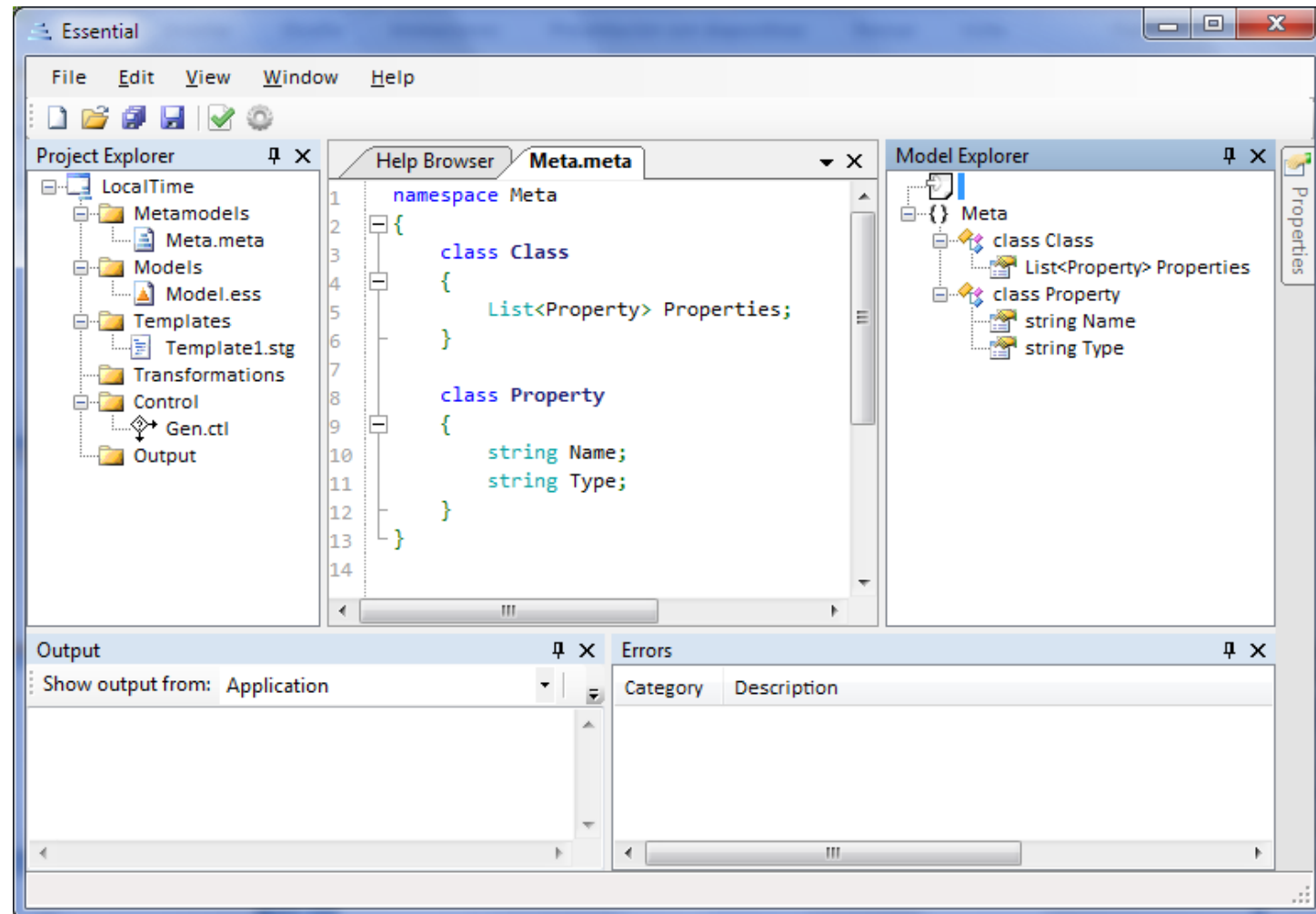


Essential



- **Essential** (2009-2019)
 - IDE and a runtime for creating code generators
 - Declarative, Clean
 - Fast
 - Promotes reuse
 - Forward engineering approach

<http://pjmolina.com/essential>



A use case: Web Components



- Web Components are standardized technology by W3C to bring to browsers:
 - Components
 - Properties
 - Events
 - Palette of Reusable Components
- The Visual Basic & Delphi Model... on the web!...

27 years later!

quid

- Prototype **Web Components** on the Web <https://quid.metadev.pro>
- Explore different WC frameworks

Banking Project with
Everis (2017-2018) for an
US investment Bank

- Generation of 60-80%
of user interface using
the bank technology
stack

The screenshot displays the 'quid' web component development tool. The browser address bar shows 'https://quid.metadev.pro'. The interface is split into two main sections: 'Design' on the left and 'Preview' on the right.

Design View (Left): Shows the code for a 'SamplePage' component. The code includes properties for filter, data, and dataready, a layout definition, a filter component, a data source, and a table listing. The code is as follows:

```
56 property filter: string
57 property data: any
58 event dataready(data: any)
59
60 // view as composition of components
61 view SamplePage
62 layout = Vertical
63 Filter f1
64   searching(t) => onSearch(t)
65 Datasource source
66   entity = "Customers"
67   dataready(d) => onData(d)
68 Listing bt
69 Actions ac1
70
71 fun onSearch(t: string)
72   source.filter = t
73 fun onData(d: any)
74   bt.data = d
75
```

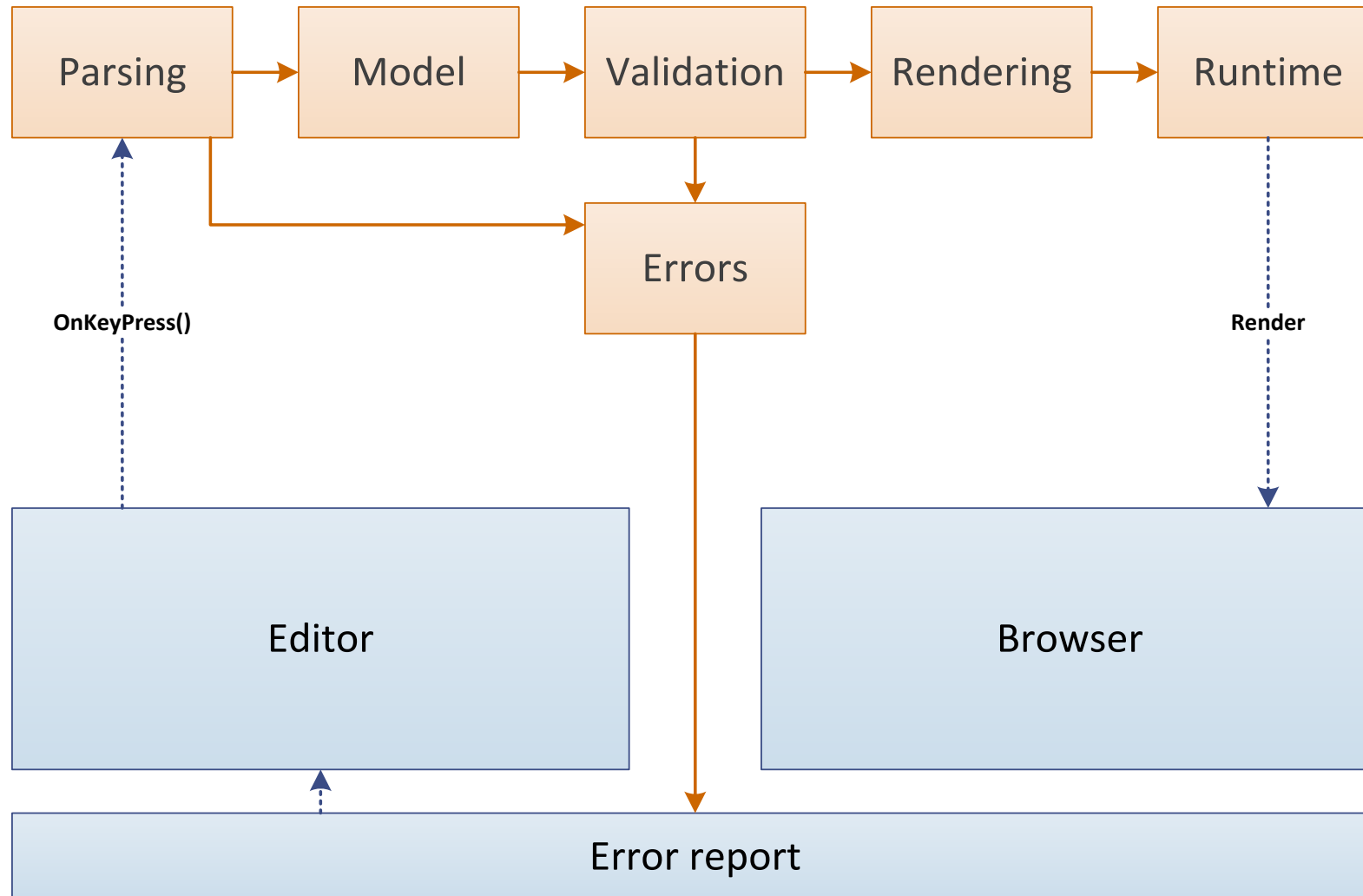
Preview View (Right): Shows a preview of the 'SamplePage' component. It features a search filter with the text 'sample' and 'Search' and 'Clear' buttons. Below the filter is a table titled 'Last Month New Customers' with the following data:

Name	Lastname	Amount (YEN)
abc	abc	abc
abc	abc	abc
abc	abc	abc
abc	abc	abc

At the bottom right of the preview, there are 'OK' and 'Cancel' buttons.

The footer of the interface shows 'quid v. 0.9.20 by METADEV' and 'docs | feedback'.

Quid



Industrial Applications

- 60-80% of **UI code** generated for Intranet Apps (US Bank)
- 100% of code gen. build, pack and deliver **Native Mobile Apps** for Citizen Developers.
- Automatic generation and cloud deploy of **BaaS** from a model.
- Ensure **Security** Compliance by design
- Ensure **Accessibility** Compliance by design
- DIY: **Extreme customization**: cost-effective & Time to Market
- **Process Tracking**: Workflows and State Machines



Conclusions

- DSLs on the Web lowers the entry barrier for adoption
 - **Zero** installation costs
 - No more tooling upgrade nightmares
- There is a **niche** for customer-specific & high-quality code generation where **compliance** is a must: security, privacy, accessibility, etc.



<https://www.lowcomote.eu>

First Training Workshop: 2nd-6th of December, Nantes
Marie Skłodowska-Curie H2020 EU Training Network

Training 15 PhDs on
Model Driven Engineering & Low Code Environments



MSCA
Marie Skłodowska-Curie Actions

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Thank you!

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