

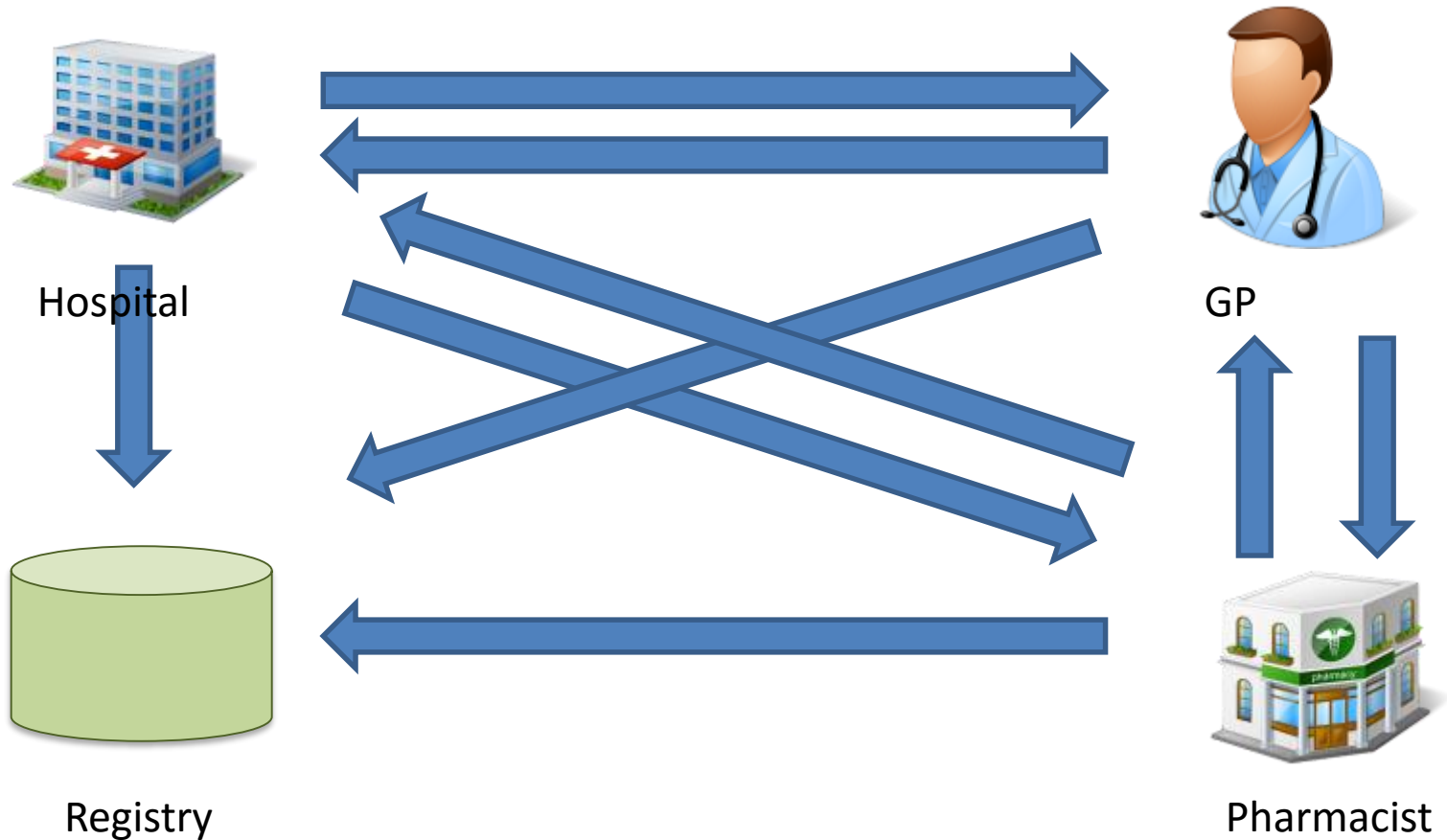
Code generation and prototyping with ADA (ART DECOR Applications)

Marc de Graauw



*"Learning without thinking is useless,
thinking without learning is dangerous"*

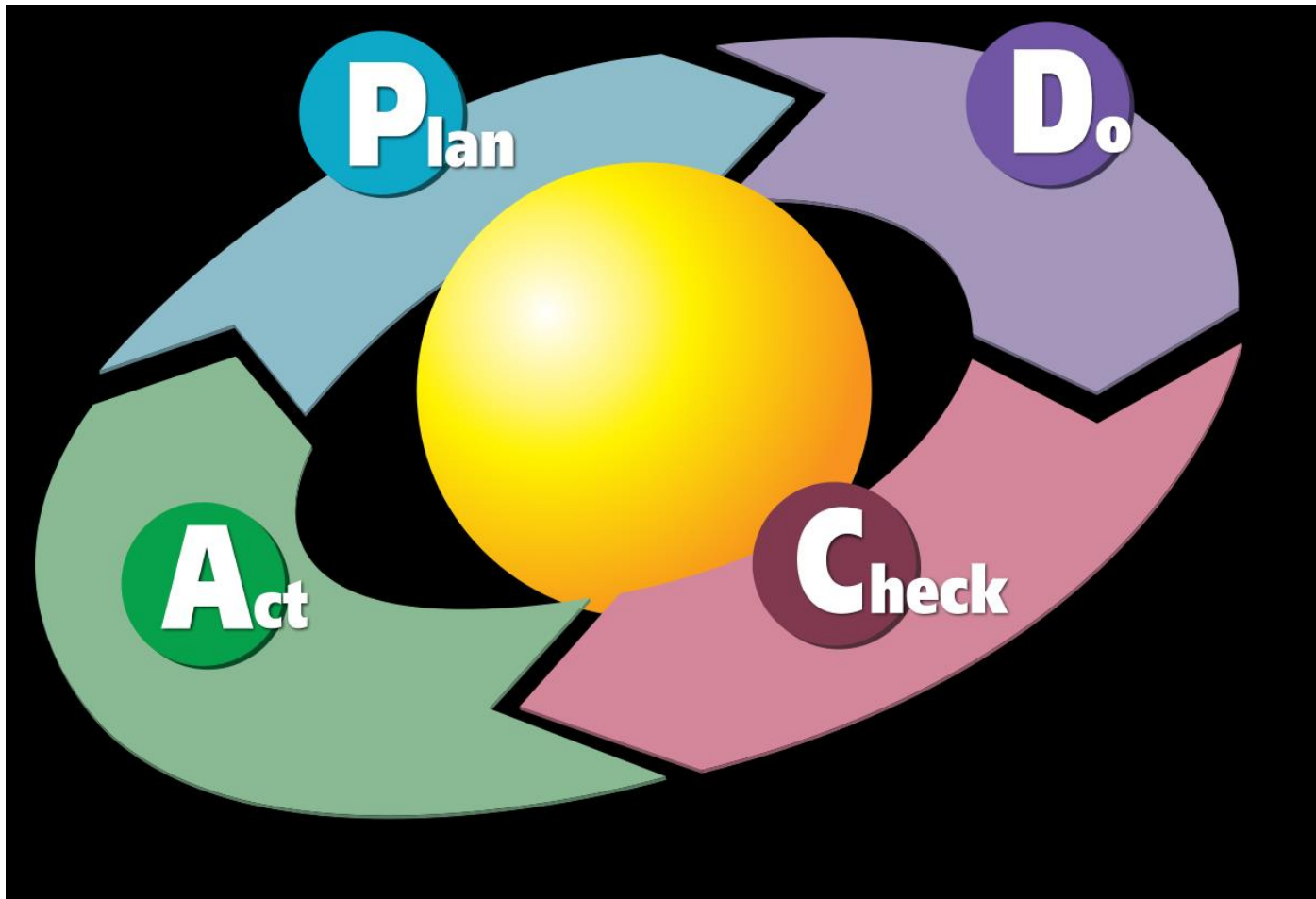
Healthcare interoperability



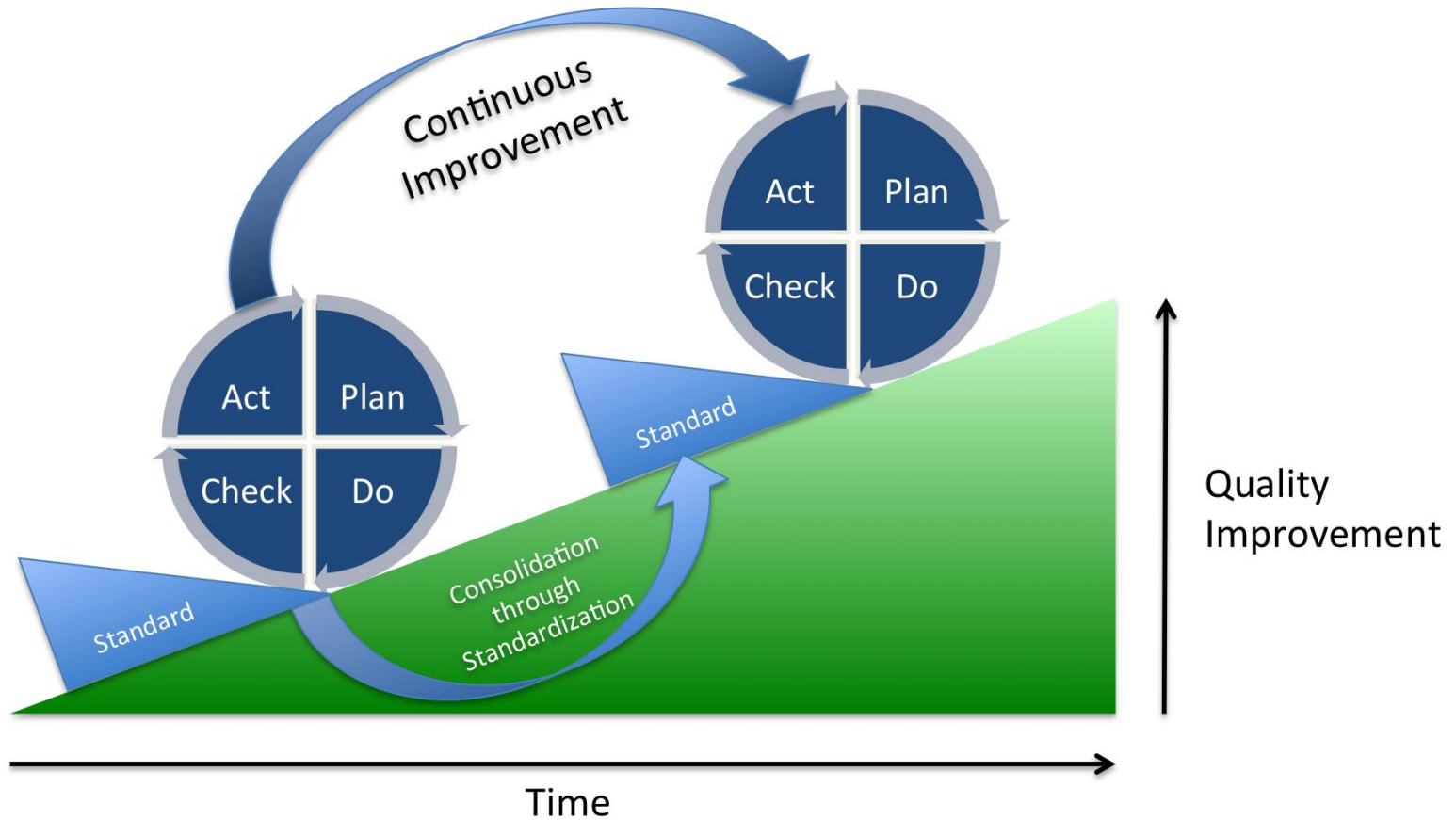
Healthcare interoperability

- Characteristics:
 - Long development cycle
 - High costs
 - Large percentage of failures
- Obstacles:
 - One party has the gains, another the costs
 - Many involved parties = politics + complexity
 - Early adopter invests, late adopter profits

PDCA Cycle



PDCA Cycle 2



The very long cycle (months)

- Plan

- Make specs
- Publish documentation

- Do

- Build software
- Deploy in healthcare institutions

- Act

- Refine specs
- Deliver Release 2

- Check

- Gather feedback
- Evaluate

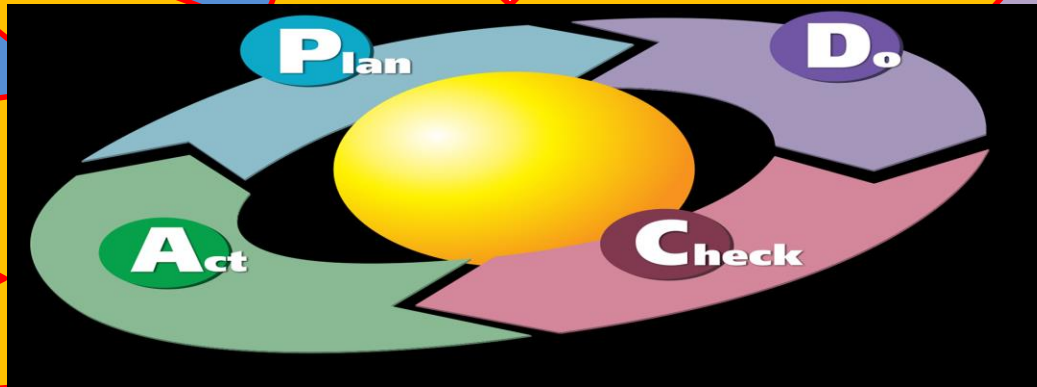
Support in ART DECOR

- Plan:
 - Design dataset, scenario, templates
 - Generate documentation
- Do:
 - (see later slides)
- Check:
 - Make issues in ART DECOR
- Act:
 - Implement issues, follow them

The very long cycle (months)

- Plan

- Publish
- details



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- Act

- Refine specs
- Deliver Release 2

Check

- Gather feedback
- Evaluate

The medium length cycle (weeks)

- Plan

- Make ART DECOR specs
- Design software
- Program software

- Do

- Build software
- Test against ART DECOR

- Act

- Correct mistakes
- Possibly in specs or test cases

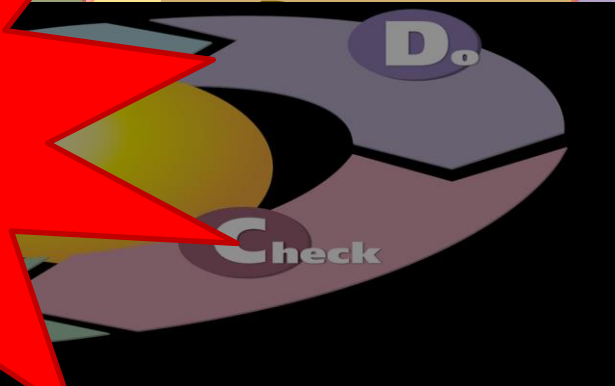
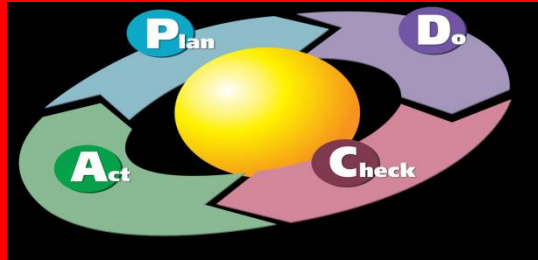
- Check

- Validate with schema
- Validate with schematron
- Check test requirements

Ondersteuning in ART DECOR

- Plan:
 - Not in ART DECOR
- Do:
 - Send message to ART DECOR
- Check:
 - Validation, report
 - Check against testcases
- Act:
 - Possibly in ART DECOR (spec refinement)

The medium length cycle (weeks)



- Plan

- Do
- Program

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- Act
 - Correct mistakes
 - Possibly in specs or test cases

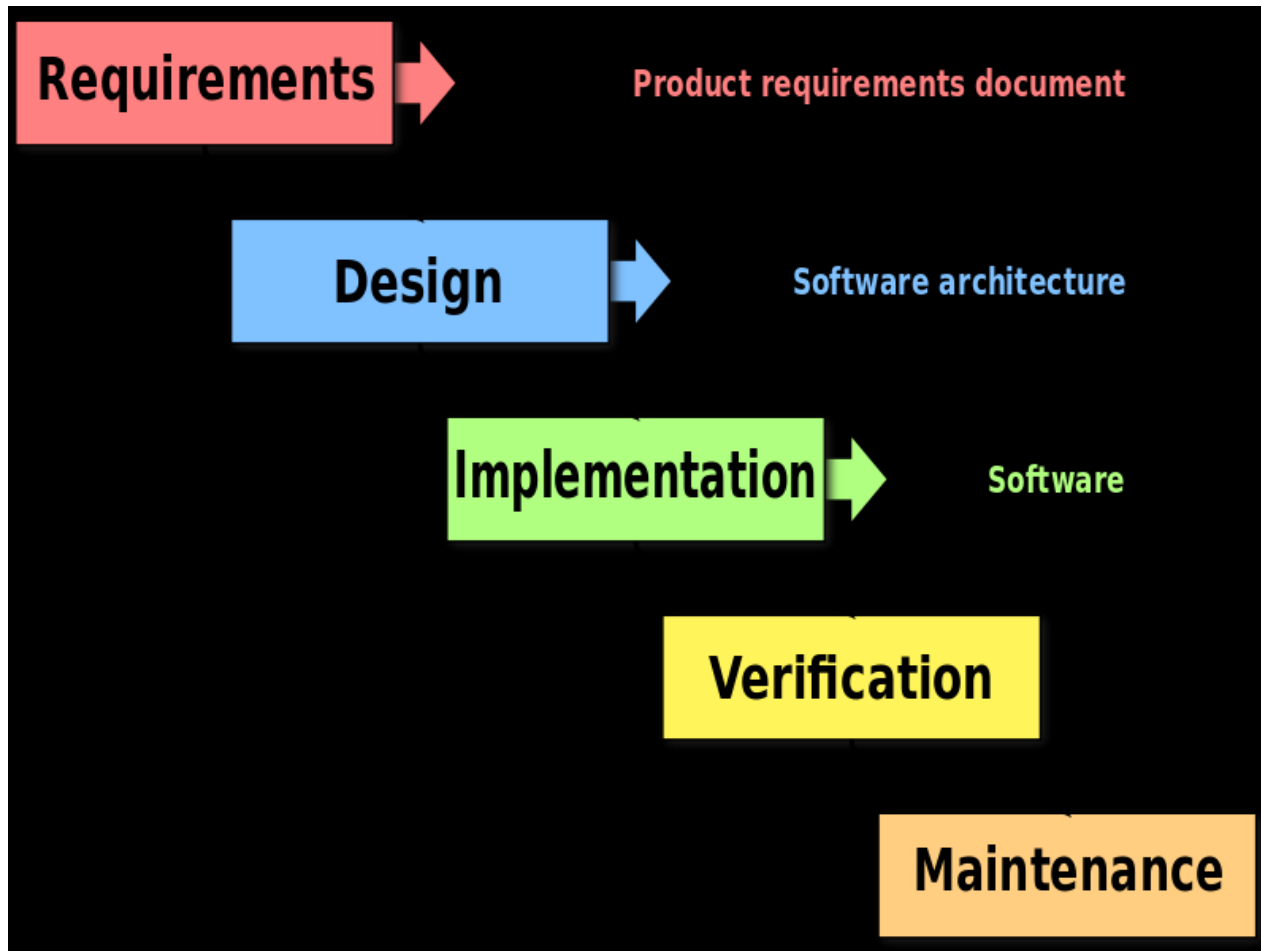
- Check
 - Validate with schema
 - Validate with schematron
 - Check test requirements

Fixing bugs

Cost to fix a defect		Time detected				
		Requirements	Architecture	Construction	System test	Post-release
Time introduced	Requirements	1×	3×	5–10×	10×	10–100×
	Architecture	–	1×	10×	15×	25–100×
	Construction	–	–	1×	10×	10–25×

Bron: wikipedia

Waterfall



Prototyping

Incremental
development

Rapid
Application
Development

Spiral
Development

Prototyping

Agile

DSDM

Scrum

The short cycle (days)

- Plan
 - ART DECOR specs

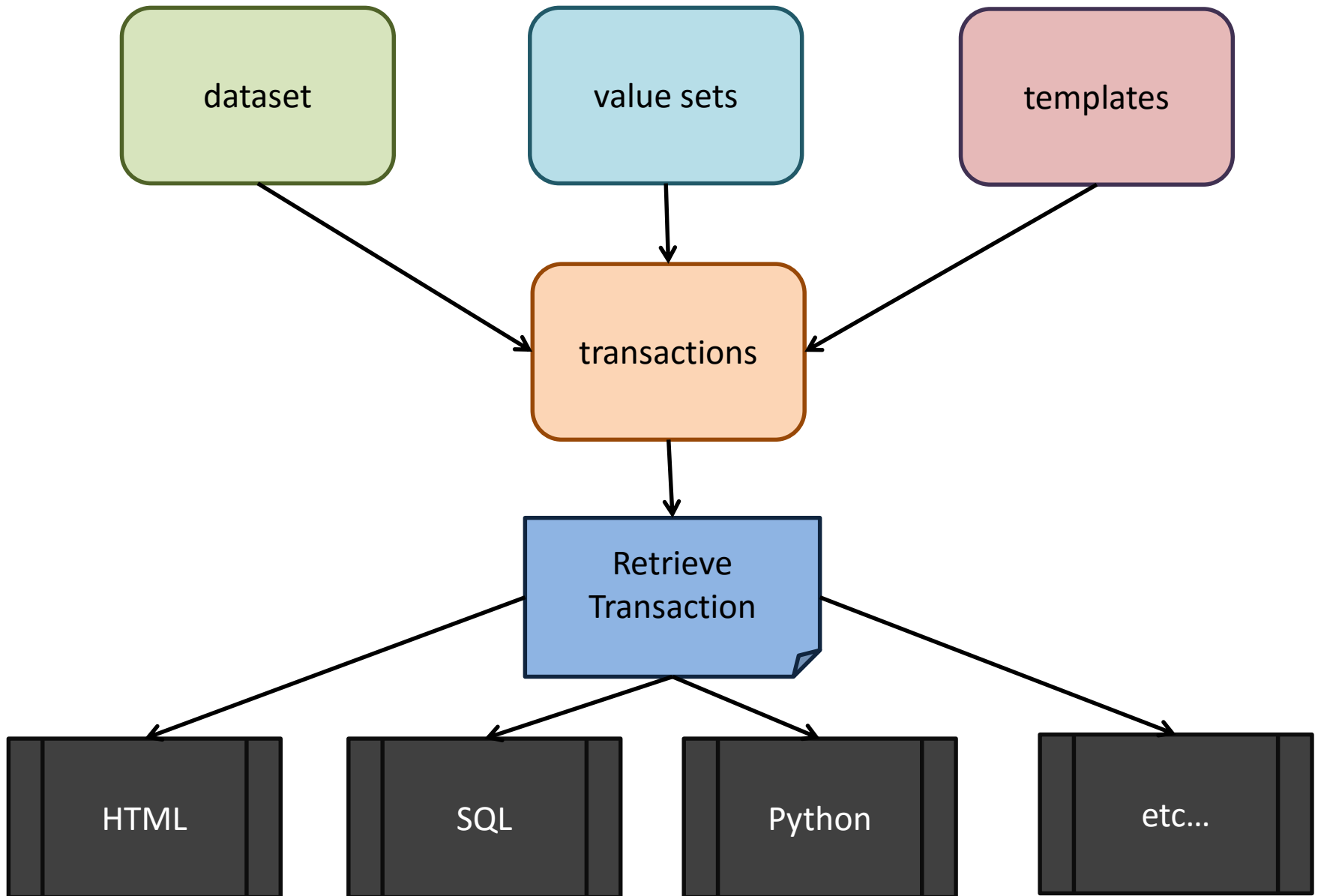
- Do
 - Generate prototype

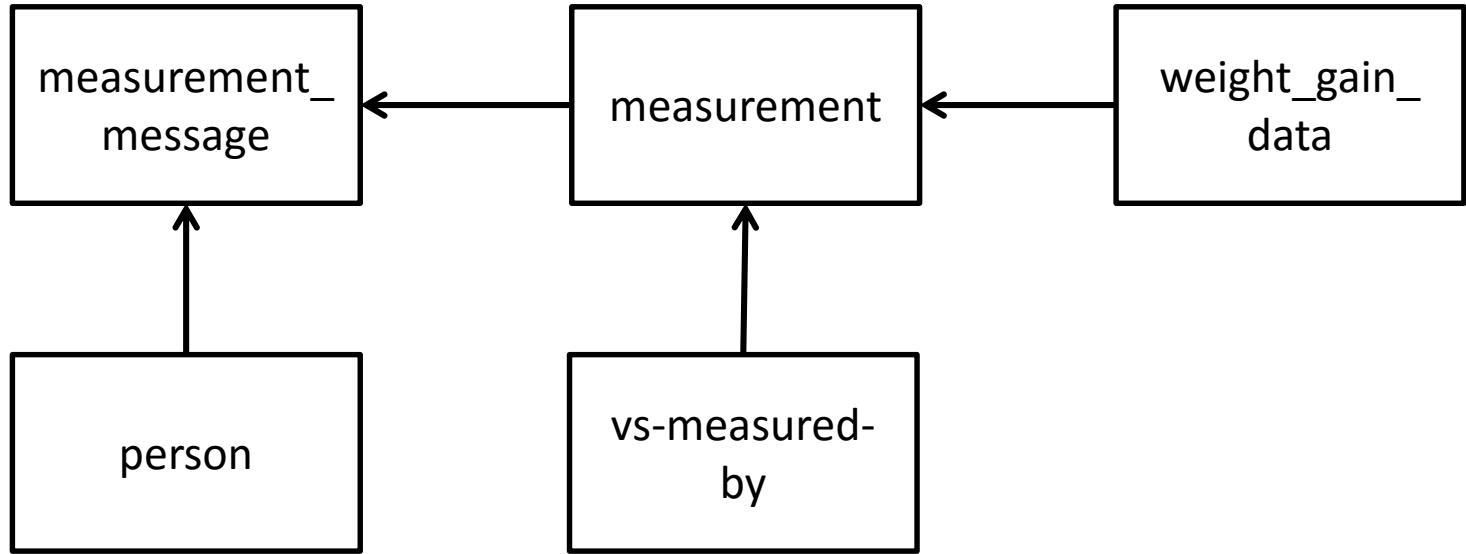
- Act
 - Adapt specs

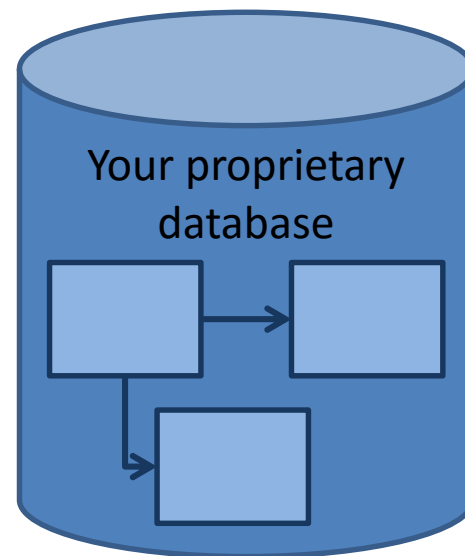
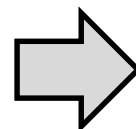
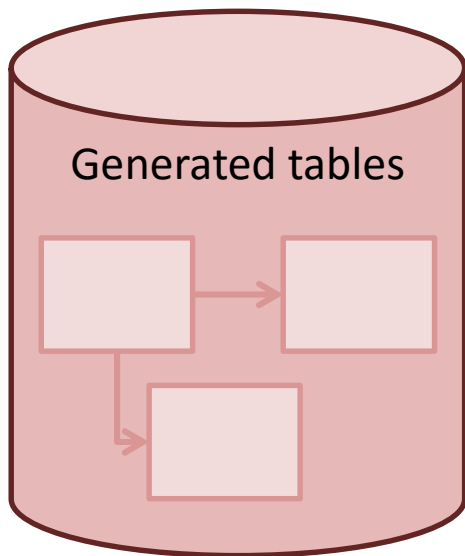
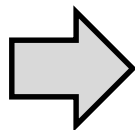
- Check
 - Testen in real life
 - By real healthcare professionals

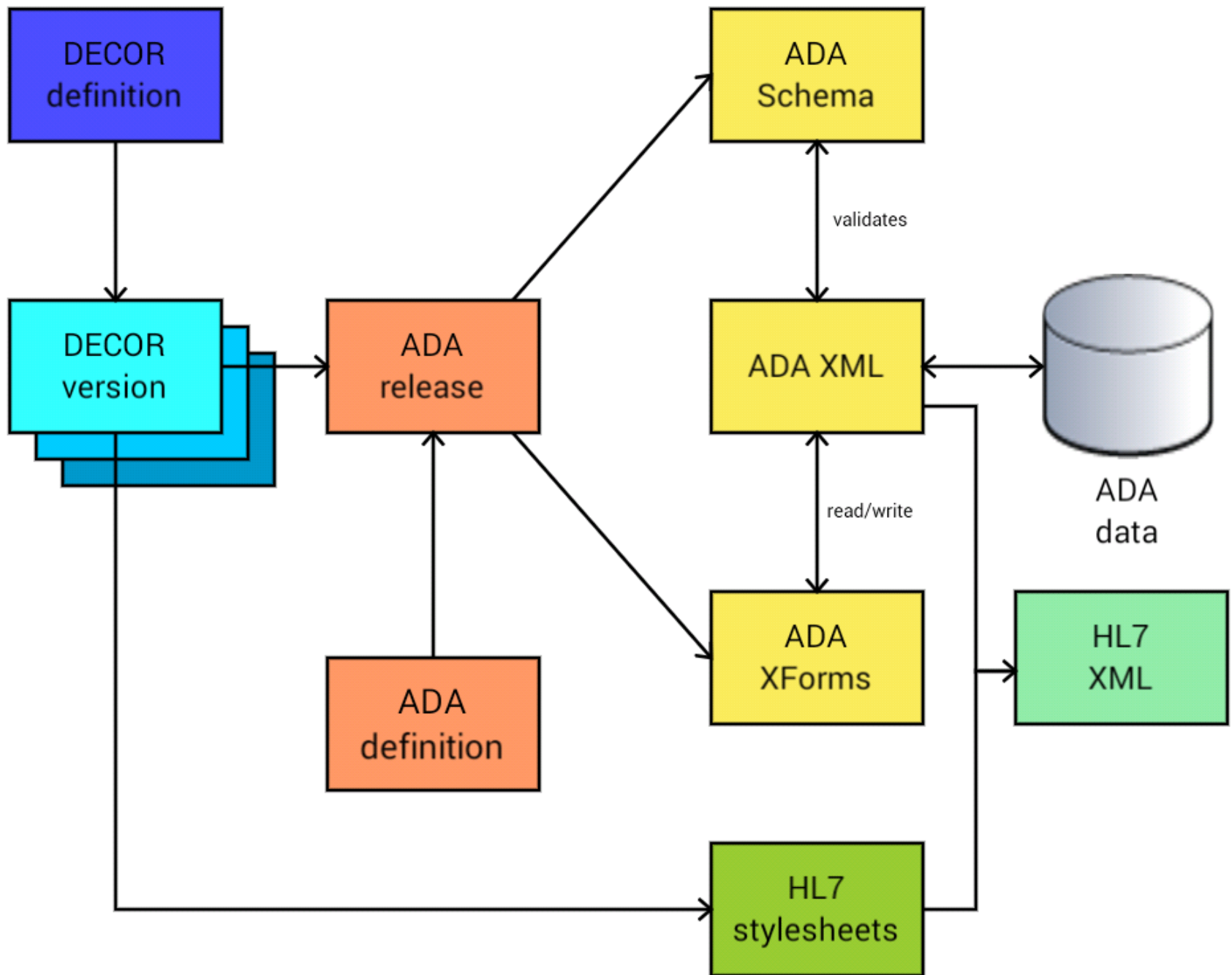
Support in ART DECOR

- Plan:
 - ART DECOR specs
- Do:
 - Make ADA definition
 - Generate prototype
- Check:
 - Use prototype
 - Report:
 - Bugs in specs
 - Design flaws
 - New insights
- Act:
 - Issues ART DECOR









DEMO

Conclusions

- ART DECOR supports ALL development cycles in messaging / document exchange
- Test as thoroughly as possible
 - Every \$ invested here is 10 - 100 \$ saved later
- Use prototyping
 - Simulate the entire proces
 - With real heathcare professionals
 - In a real life environment
- With large scale integration everything takes long
- Do it right from the start!