



Software Testing in Practice

Guest lecture at UAntwerpen
April 28, 2025

Koen De Hondt

mediagenix

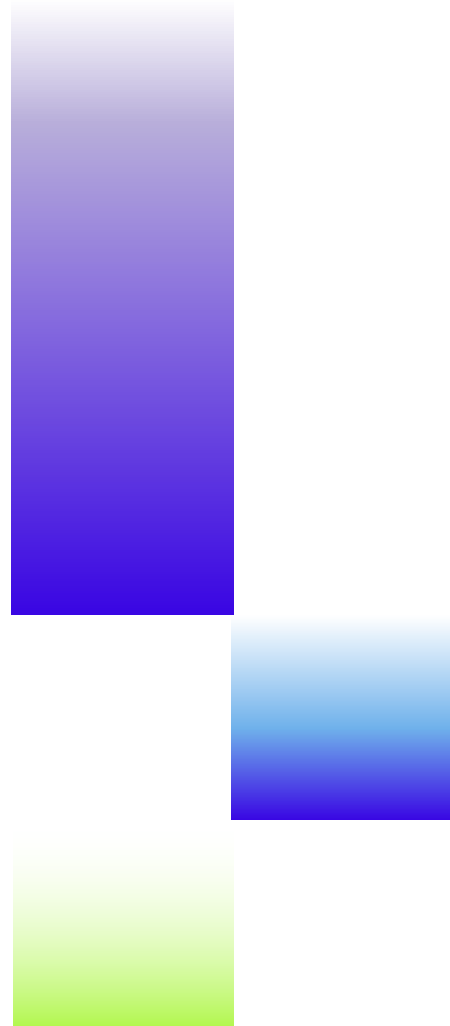


Agenda

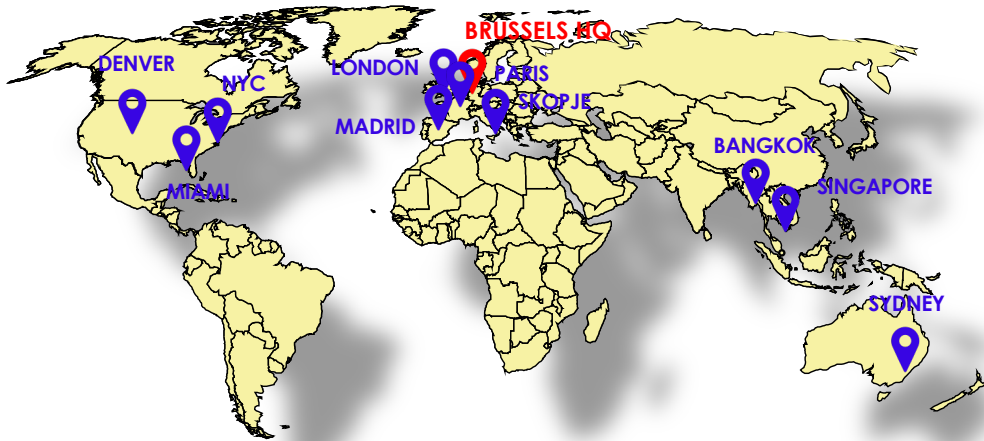
Introduction

Setting the stage

Testing a complex software product



mediagenix



A Trusted Partner to the media industry for 30+ years



2bn+
Viewers



2,500+
Services



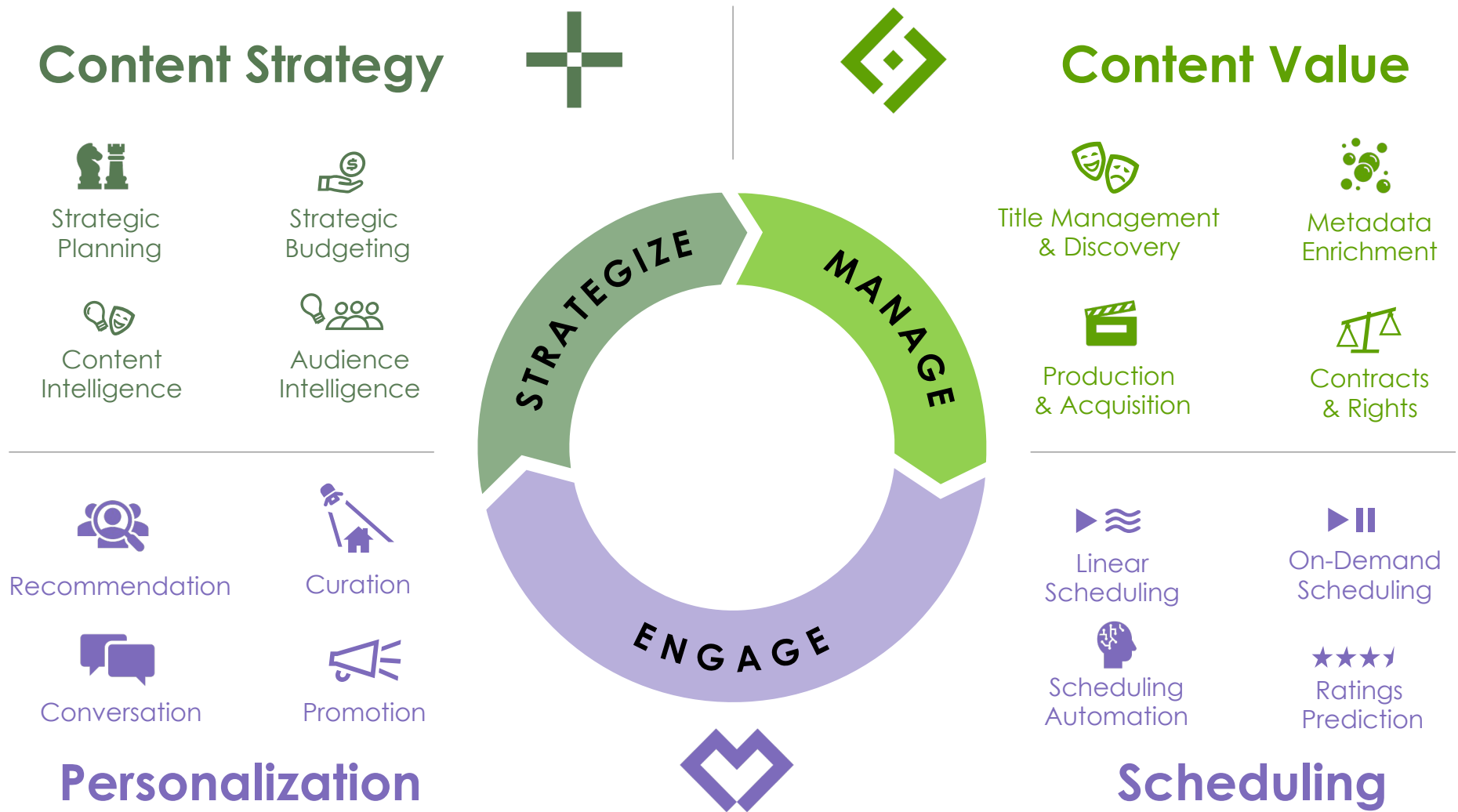
200+
Media Groups



400+
Experts



10,000+
Users



Scheduling

mgx-eu-west-1a-demo-acc.whatsonmediagenix.io/app-sessions?session=4a703bdf-a185-4f4d-867c-6d768644fdd

Transmission plan --- 6. M Channel US --- Mo 06/05/24 --- Su 12/05/24 --- Ven gny ntracts

File Edit Tools Day Integration Transmission Related Links Finance On demand Context View Window

09:30:00 10:00:00 00:30 13/08

May

Me 06/05/24 Tu 07/05/24 We 08/05/24 Th 09/05/24

LOONY TUNES
Episode: 3/60
(3) LOONY TUNES_3
Classic Loony Tunes...

SPONGEBOB SQUAREPANTS
Episode: 2/100
...

TEENAGE MUTANT NINJA TURTLES
Episode: 3/60
(3) TEENAGE MUTANT NINJA TURTLES_3
...

Chicago Hope - Chicago Hope
Episode: 1/22
Part 1

FRASIER S2
Episode: 1/12
Part 1

C.S.I. MIAMI Y1
Episode: 1/24
(1) Golden Parachute
This is the short description

GREY'S ANATOMY
Episode: 11/25
Part 11
Grey's Anatomy is an American medical drama television series that (...)

LOONY TUNES
Episode: 3/60
(3) LOONY TUNES_3
Classic Loony Tunes...

SPONGEBOB SQUAREPANTS
Episode: 3/100
...

TEENAGE MUTANT NINJA TURTLES
Episode: 4/60
(4) TEENAGE MUTANT NINJA TURTLES_4
...

Chicago Hope - Chicago Hope
Episode: 2/22
Part 2

FRASIER S2
Episode: 2/12
Part 2

C.S.I. MIAMI Y1
Episode: 2/24
(2) Losing Face
this is a short description

GREY'S ANATOMY
Episode: 12/25
Part 12
Grey's Anatomy is an American medical drama television series that (...)

LOONY TUNES
Episode: 4/60
(4) LOONY TUNES_4
Classic Loony Tunes...

SPONGEBOB SQUAREPANTS
Episode: 4/100
...

TEENAGE MUTANT NINJA TURTLES
Episode: 5/60
(5) TEENAGE MUTANT NINJA TURTLES_5
...

Chicago Hope - Chicago Hope
Episode: 3/22
Part 3

FRASIER S2
Episode: 3/12
Part 3

C.S.I. MIAMI Y1
Episode: 3/24
(3) Wet Foot/Dry Foot

GREY'S ANATOMY
Episode: 13/25
Part 13
Grey's Anatomy is an American medical drama television series that (...)

LOONY TUNES
Episode: 5/60
...

SPONGEBOB SQUAREPANTS
Episode: 5/100
...

TEENAGE MUTANT NINJA TURTLES
Episode: 6/60
(6) TEENAGE MUTANT NINJA TURTLES_6
...

Chicago Hope - Chicago Hope
Episode: 4/22
Part 4

FRASIER S2
Episode: 4/12
Part 4

C.S.I. MIAMI Y1 - Just One Kiss
Episode: 4/24
(4) Just One Kiss

GREY'S ANATOMY
Episode: 14/25
Part 14
Grey's Anatomy is an American medical drama television series that (...)

Content browser

File Edit Tools Links View Window

Summary of grouped results (hidden)

Product code	Version	Title	Internal number	Product duration	Status
COMMERCIAL-6(	A	Commercial-1		00:30	
COMMERCIAL-6(	A	Commercial-2		01:00	
COMMERCIAL-6(	A	Commercial-3		01:30	
COMMERCIAL-6(	A	Commercial-4		02:00	
0000036/63/000	A	Master Trailer nr : 1		02:00	TestPSIProdu
A	A	Program nr: 1		23:00	TestPSIProdu
A	A	Program nr: 2		23:00	TestPSIProdu
A	A	Program nr: 3		23:00	TestPSIProdu

Transmission assistant

File Edit Tools Transmission Related Links Finance On demand Context View Window

TRANSMISSION

Main properties

General

Break modelling

Technology

Finance

Channellinks

Ratings

PLANNING

Start date (formula): 3/04/25

Start time (formula):

End time:

Hour data locked:

Softlocked start time:

Catch-up transmission has different content:

Catch-up transmission has different content and content version:

PUBLICATION

Publication end date: 3/04/25

Announced time:

Publication end time:

Duration:

Desired segmentation:

Reference of relative date or hour is missing:

OTHER

Live:

Elastic:

Expandable:

Studio:

Brand:

Excluded sections:

Machine:

Override live indication from product:

Should be live:

Under embargo:

Surrogate:

Without manual end:

Live subtitling:

Transmissions

Find

Title	Channel	Publication system	Day of the week	Publication start date	Publication
Split transmis	MgX	MgX	Thursday	3/04/25	3/04/25
Split transmis	MgX	MgX	Thursday	3/04/25	3/04/25

2/2 Transmissions - Timeline from 3/04/25 - 3/04/25 Channels: MgX

Koen De Hondt

1990-1999 Teaching and research assistant at VUB
1992 One of the founders of Mediagenix
1998 PhD Computer Science

1999-2002 Object Coach at Mediagenix
2003-2008 Team lead in QA team of EMC-BDG
2008-2024 Web development positions at three companies

2024- Program Manager at Mediagenix

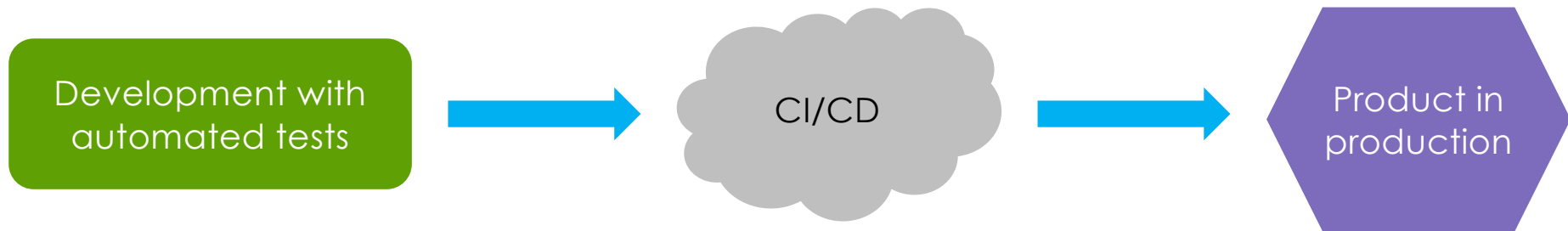
Has software quality in his DNA

Practices test-driven development
Loves pair programming

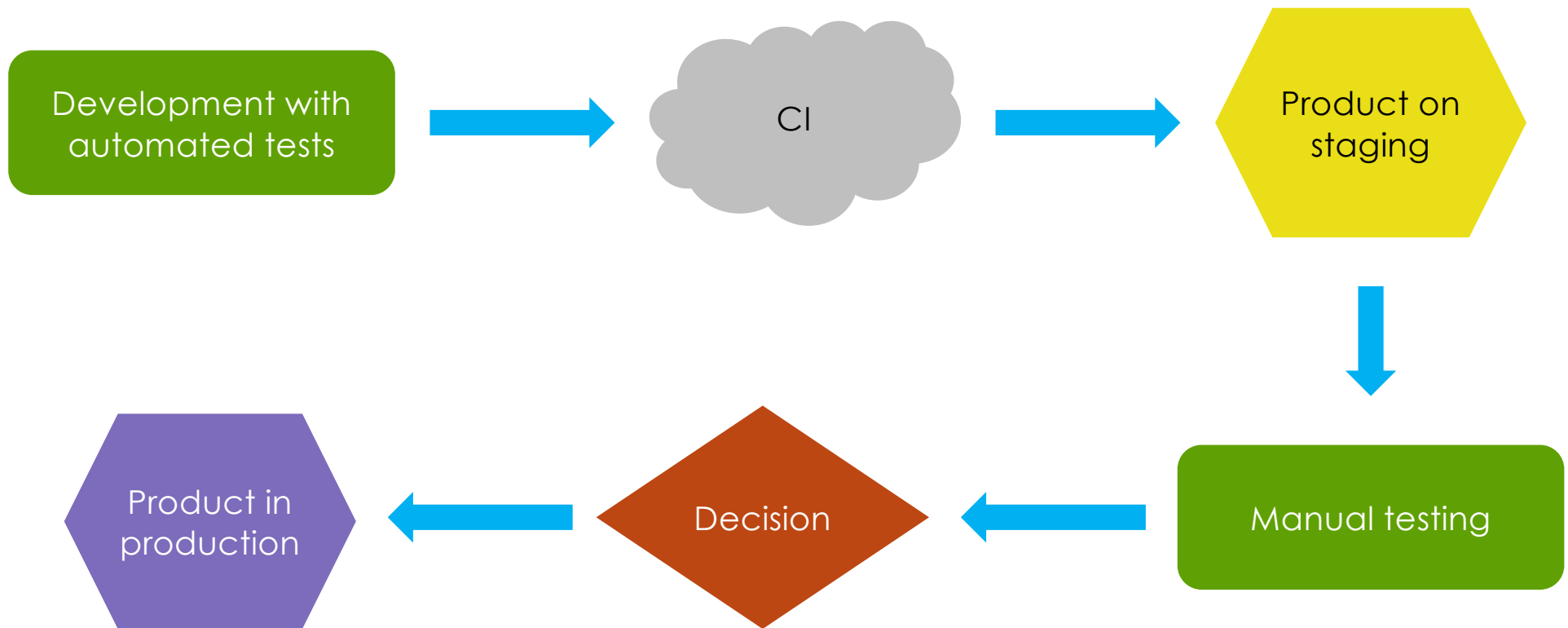
Uses Smalltalk since 1988
Actively contributes to Pharo (pharo.org)
Blogs on Smalltalk: all-objects-all-the-time.st

Has 15 years of experience with Ruby on Rails

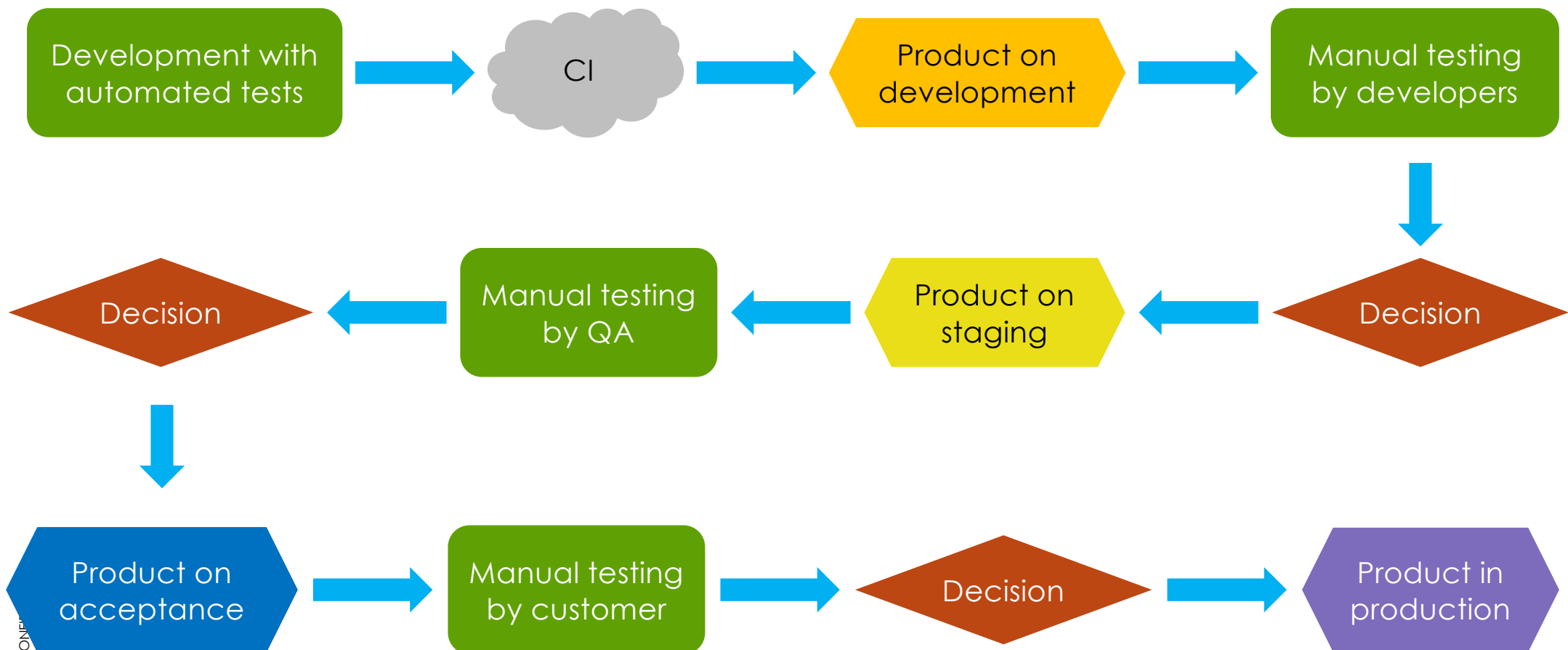
Ideal Situation



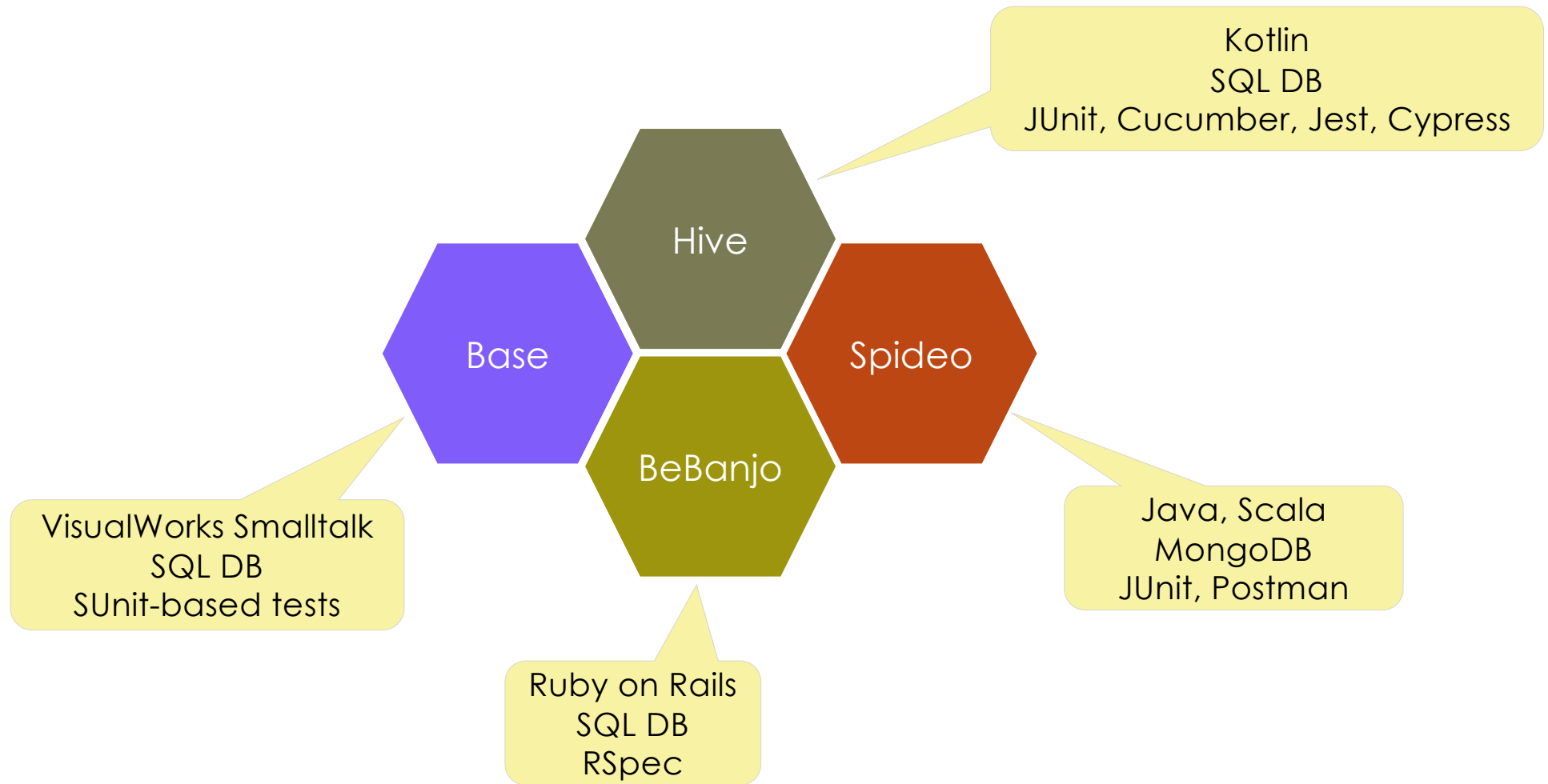
More Realistic Situation



More Complex Situation



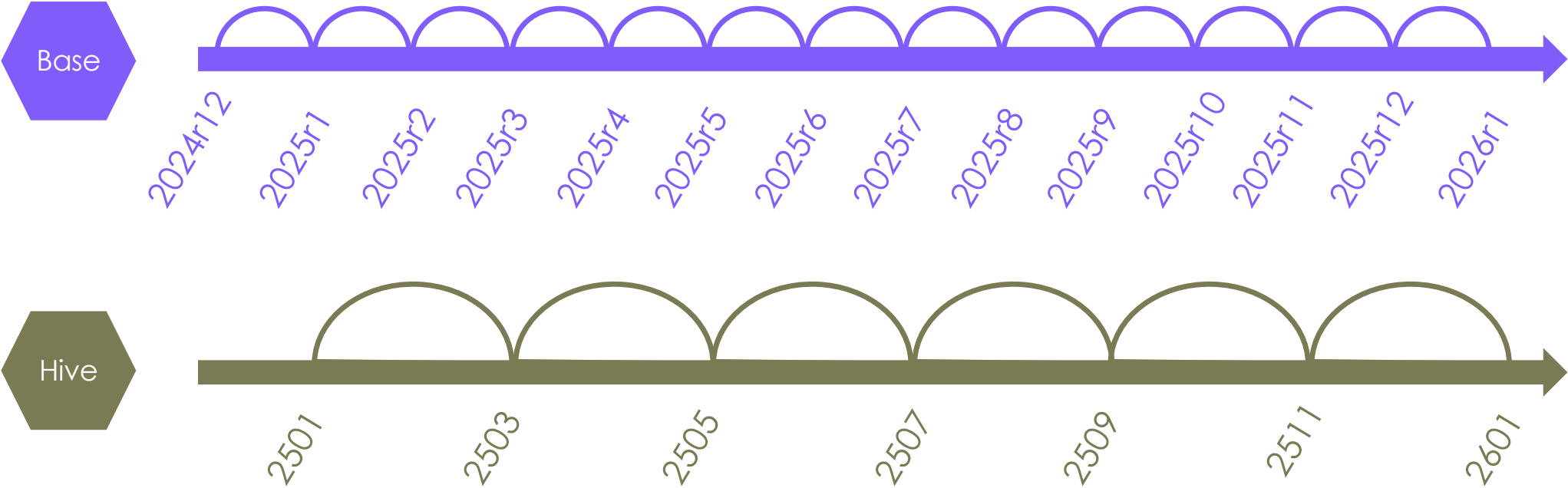
Mediagenix Platforms



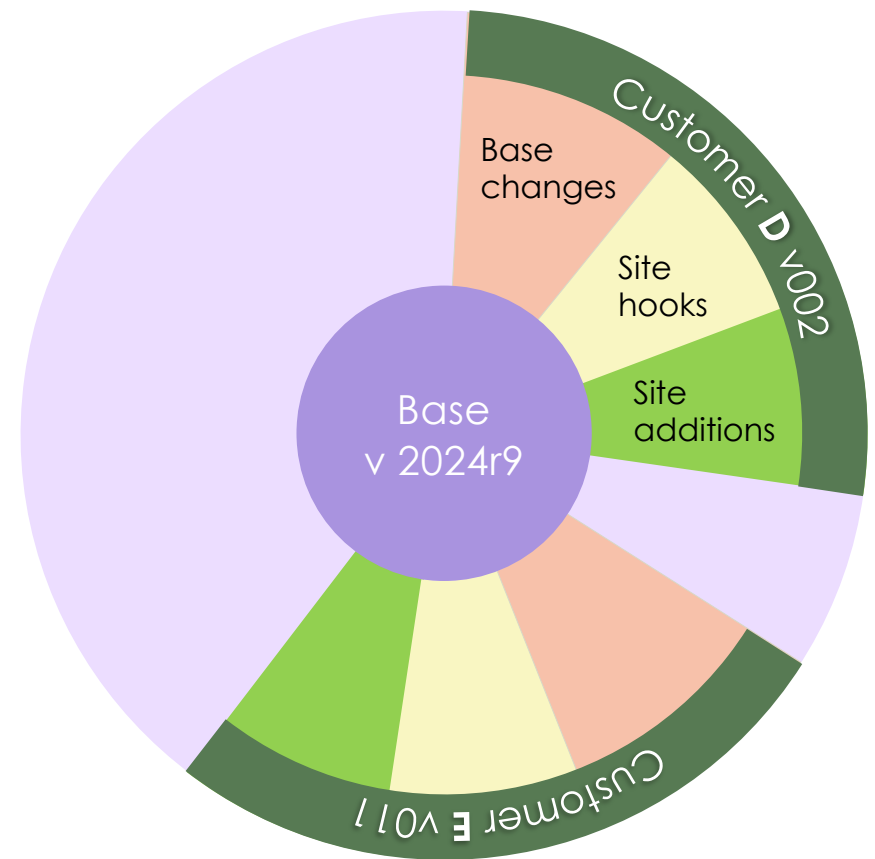
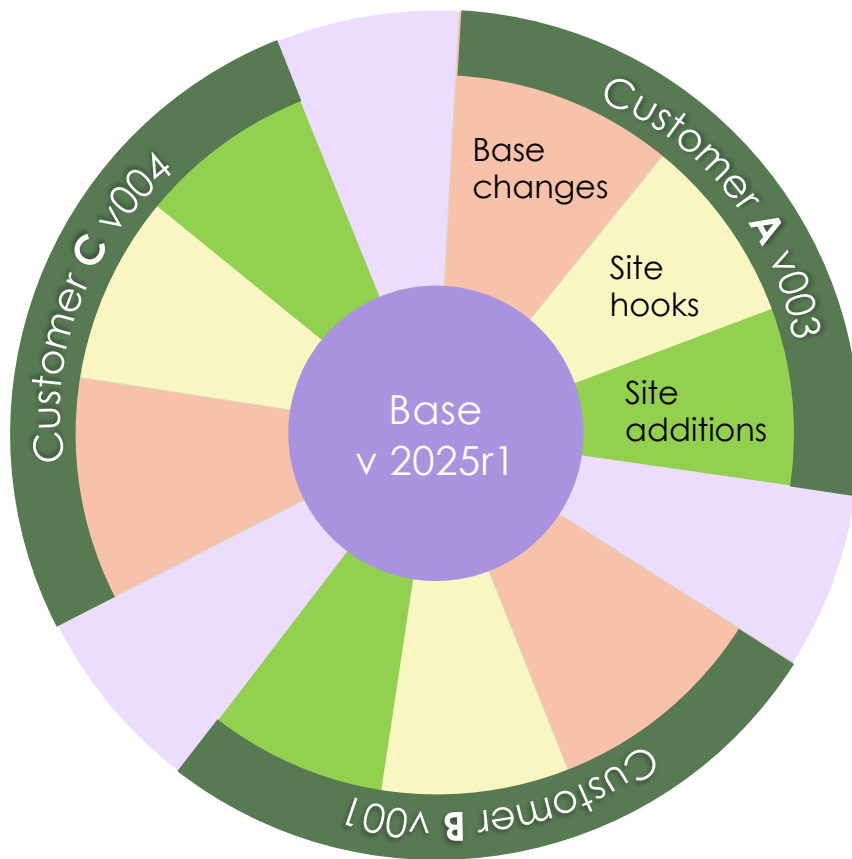
Integration of Platforms



Release Schedule

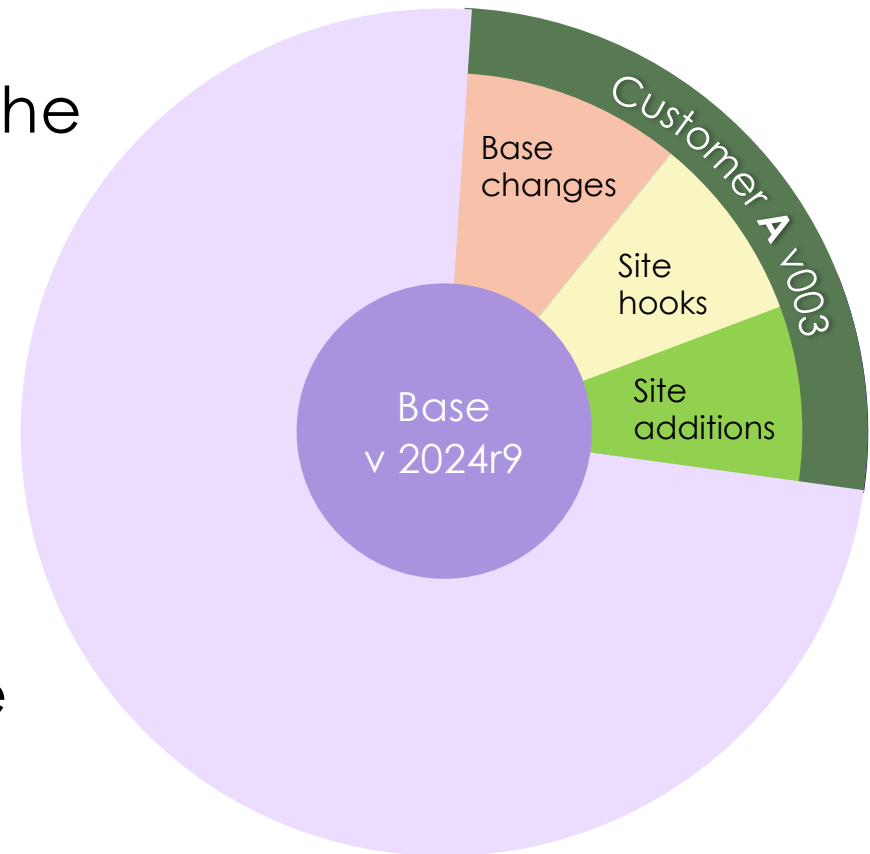


Software Architecture: Base and Customizations

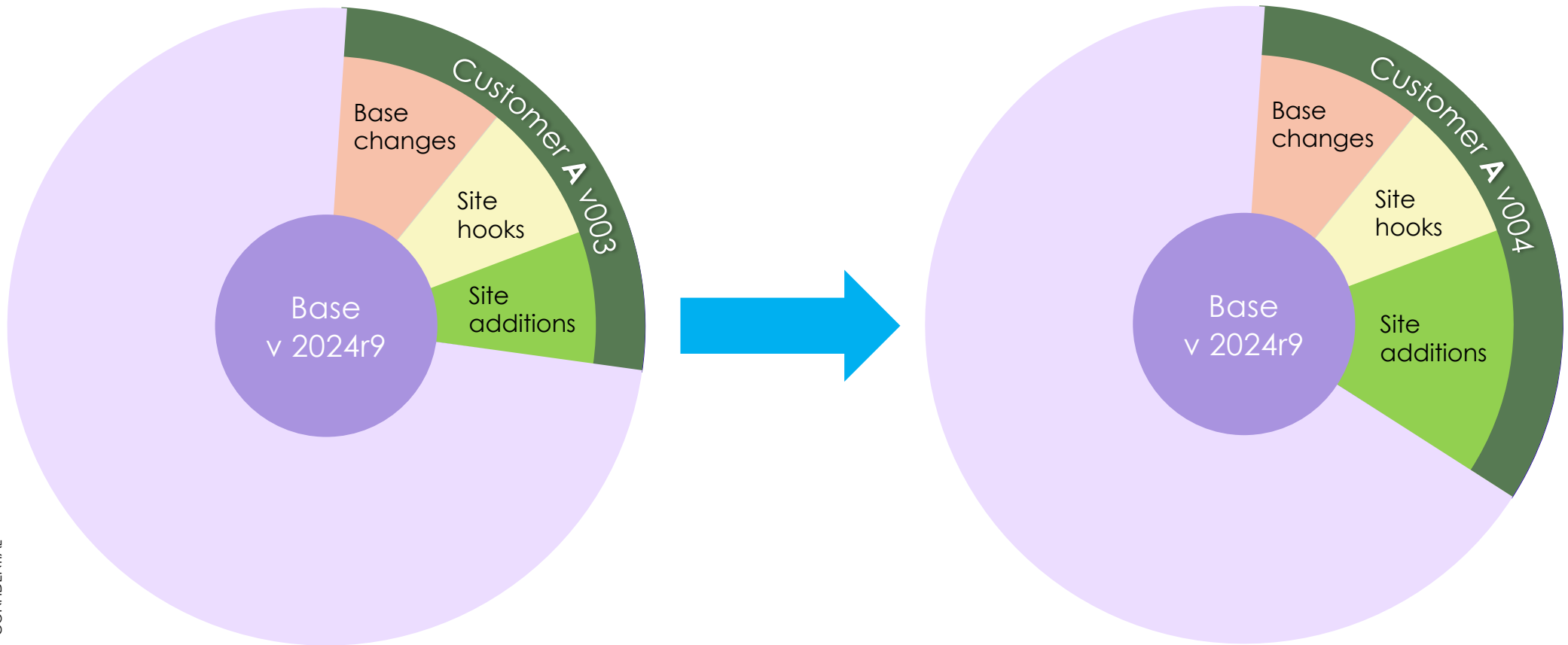


The Testing Challenge

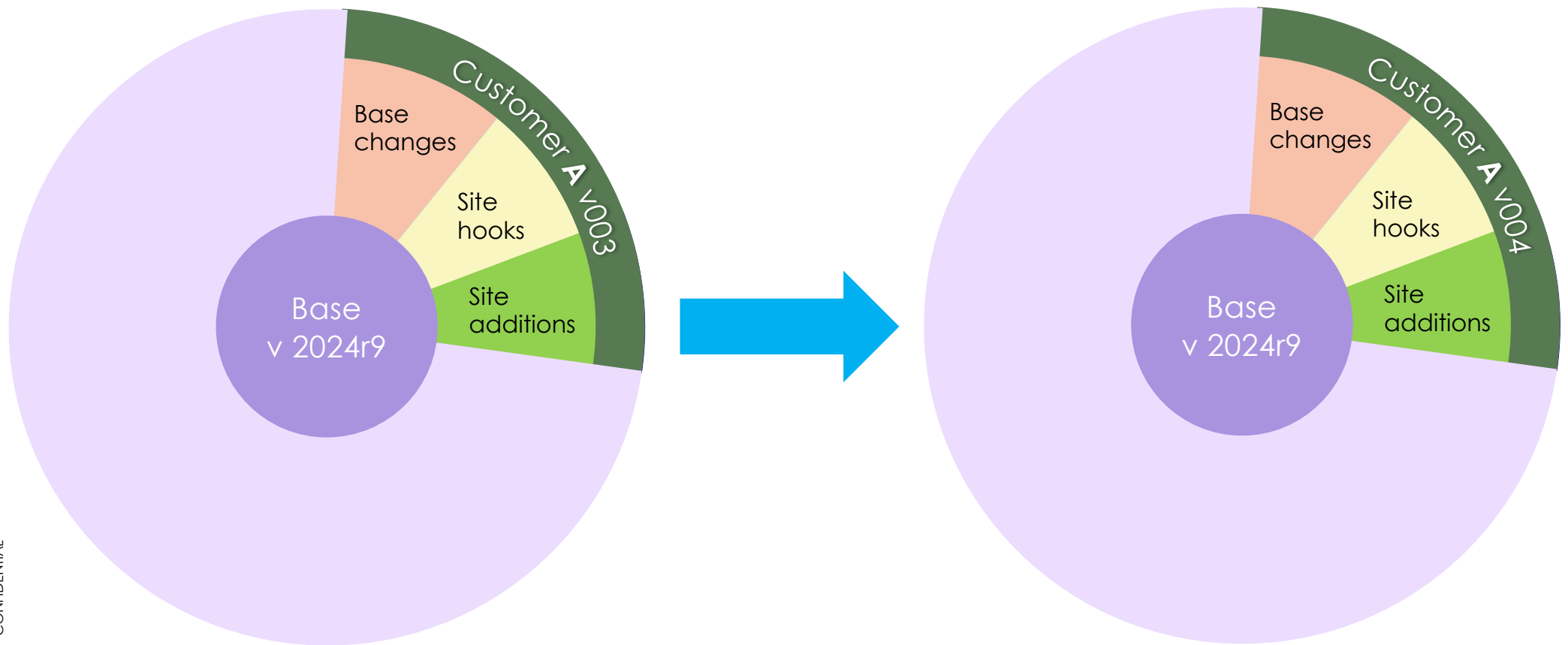
- How do you test Base and all the customizations?
- What is the impact of customizations on Base tests?
- Example: an extra mandatory field impacts all tests that save data



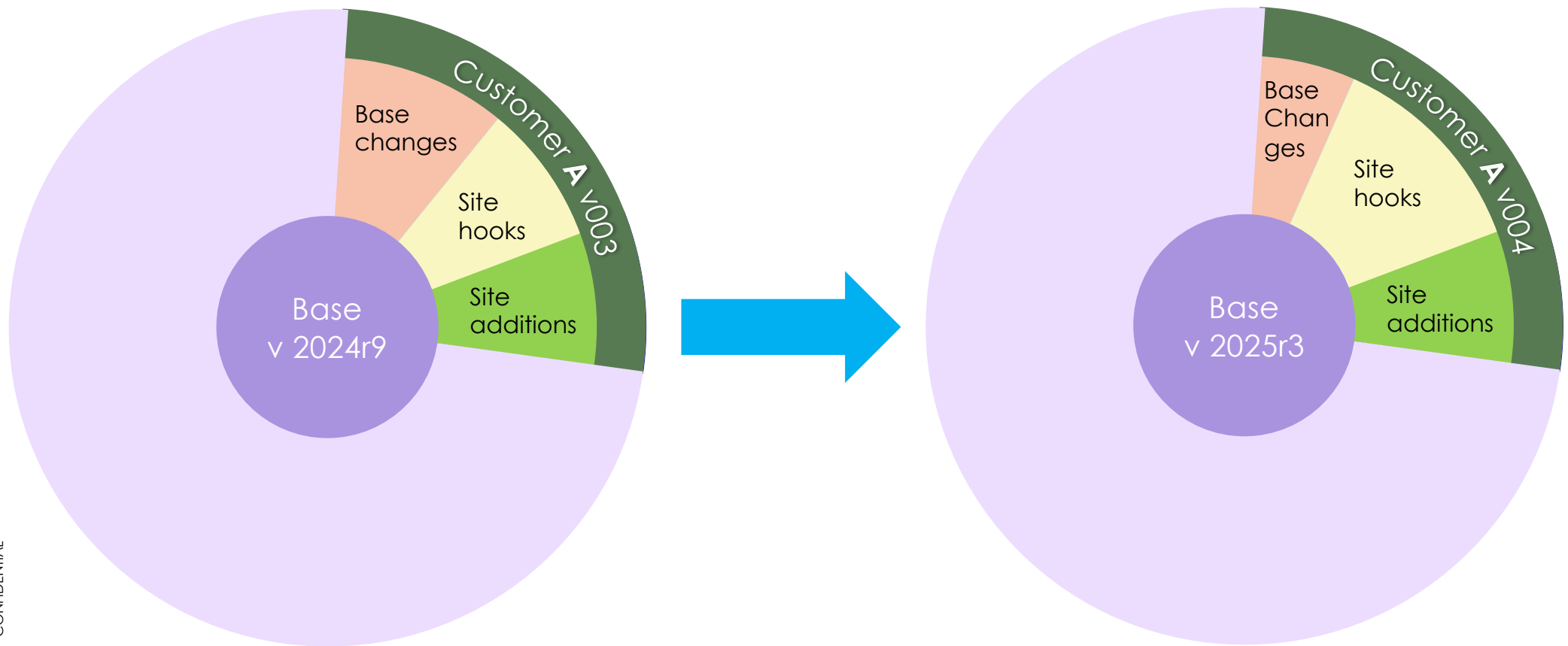
Software Evolution: New Functionality



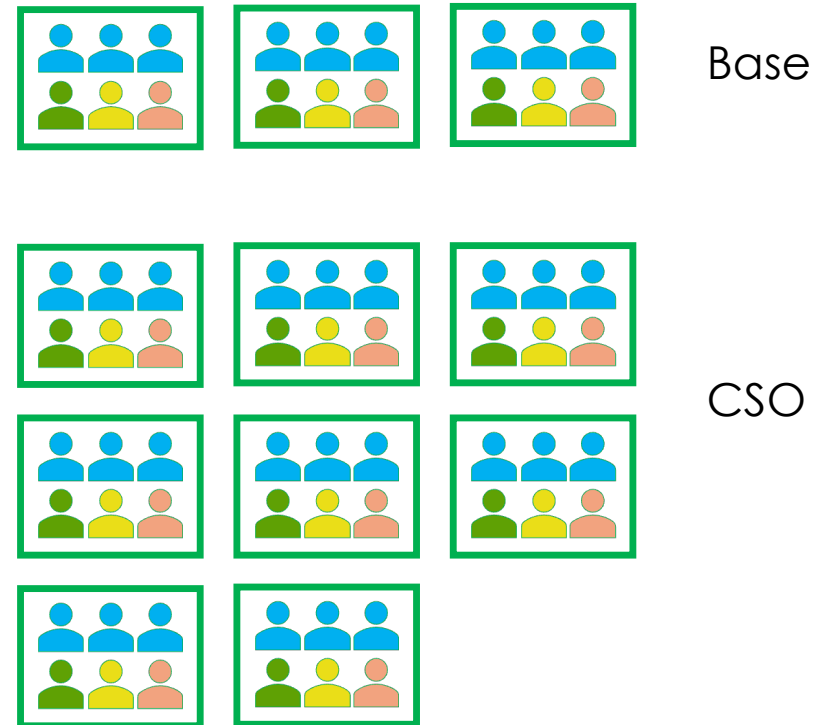
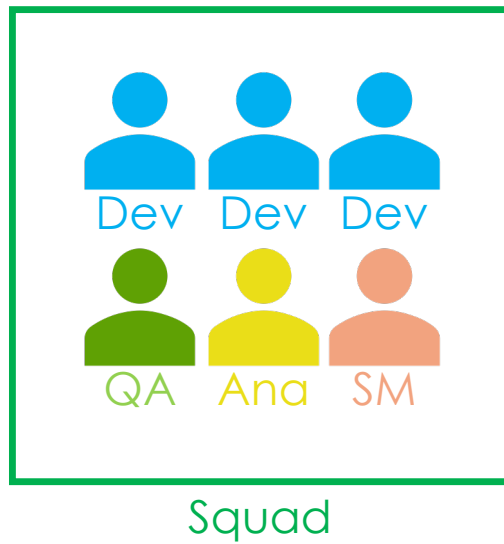
Software Evolution: Bug Fix



Software Evolution: Upgrade



Organization and Roles



Automated and Manual Tests



- Implementing tests in Smalltalk



- Writing test scenarios in an external test management system



- Executing test scenarios manually
- Manual regression testing during upgrade projects
- Manual regression testing when integrated products change

Manual Tests

- Step-by-step instructions
- Gherkin scripts (<https://cucumber.io/docs/gherkin/reference>)

PRODUCT / Test Cases / 104 ADMIN - Create Linear Channel

104 ADMIN - Create Linear Channel

Details **Test Script** Traceability Execution History

EXPECTED RESULT

None

STEP

2 Create a new **Linear Channel**
Fill in the mandatory fields
tab *Schedules*: add extra Schedule versions
tab *Playlist*: add Channel playlist report *BXF playlist*
tab *Contract*: add the available Right types for Linear (Free TV, Pay TV)
tab *Publication*: add the Linear Publication system created in the previous TestCase
tab *Publication*: set 'Use publication report of publication system' = True

Save, click Yes on msg#2419

TEST DATA

None

EXPECTED RESULT

New Linear Channel is created

PRODUCT / Test Cases /

Filters - Filter on type

Details **Test Script** Execution Traceability Attachments Comments History

Type: BDD - Gherkin

BDD - Gherkin Script

- 1 **Given** that I'm in the Schedule Gallery app
- 2 **And** I have the transmission list open
- 3 **And** I filter on transmission type
- 4 **Then** the list of transmissions gets updated correctly

Statistics



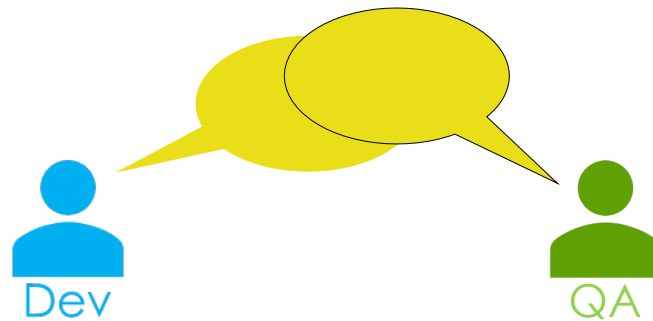
220.000+ tests in Smalltalk



3800+ manual tests

Process Issues Related to Manual Testing

- Who defines the acceptance criteria for a user story?
- Who writes the acceptance tests?
- What will be tested by automated tests and what will be tested manually?



Issues with Manual Tests

- Manual execution is not scalable
- Different interpretations by different test executors
- Hard to avoid overlap with automated tests
- Test maintenance
- Are all 3800+ test cases still valid?

Issues with Automating Manual Tests

- Automated tests do things differently from a manual tester
- Base is tested with an empty database
- Customizations are tested with customer databases
- Automating Gherkin scripts requires dedicated tools
 - Cucumber (<https://cucumber.io>)
 - Not available in Smalltalk (<https://all-objects-all-the-time.st/#/blog/posts/13>)

Upgrades and the Role of the Customer

- Some customers do not like upgrades
- They prefer testing (manually) themselves
- Some upgrade projects take a long time
- Consequently, some customers use old Base versions
- Result: increased maintenance issues

Conclusion

- Impact of technology choices
 - For Smalltalk, no external tools for testing are available
- Impact of business choices
 - Selling a product with customizations blows up the time to test
- Impact of organizational choices
 - Division between developers and QA specialists is suboptimal

Future

- No Base changes in customizations
- Synchronize release schedules of different products
- Upgrade more frequently to minimize the number of Base versions in the field
- Avoid manual testing
- Better cooperation between developers and QA specialists



Thank you!

koen.de.hondt@mediagenix.tv

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