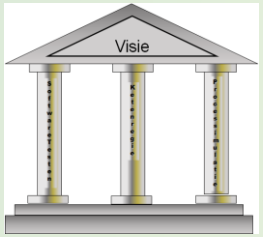
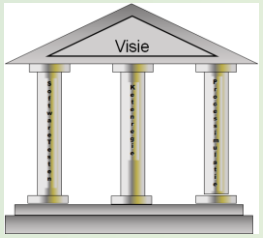


Quality Monitoring for Critical Systems

Valid 2021

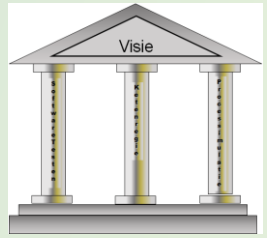
Jos van Rooijen

Agenda

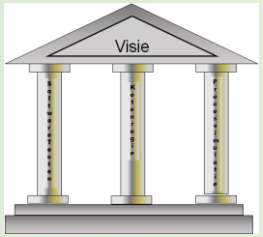


- Introduction
- Project circumstances
- Context
- Project assignment
- Quality monitoring
- Principles
- Approach
- Challenges
- Tooling
- Future work

Introduction



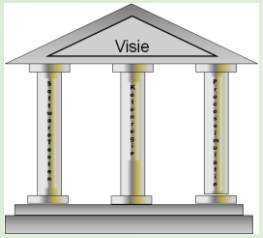
- Consultant at Huis voor Software kwaliteit
- Partner at Identify
- 30 years in software testing & quality management
- Co-author several quality related books
- Test expert online magazine Computable
- Publication areas; Testing, Education and quality monitoring
- Graduation supervisor Avans university of applied science
- Visiting lecturer Universities of Applied Science
- Member of the steering committee Valid
- Member advisory board Hogeschool Utrecht
- Member of the board Dutch Testing Society



Project circumstances

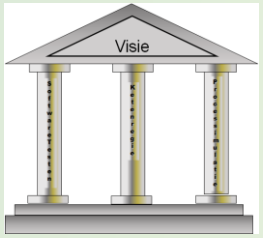
- Project with a lead time of 5 years, started in 2020
- Current development platform is end of life at 2025
- Social impact is huge in the public sector
- Risk of harm is tremendous
- >150 billion euro per year is going around the systems
- Key Performance Indicator(KPI) is:
  - Business continuity is priority 1
  - Business quality is also priority 1
- A lot of processing through the system
- No. of function points >10000
- Project budget > 50 million euro’s

Project context



- Organization is switching from the waterfall method to an agile/safe way of work
- Governance related issues:
  - Several control mechanisms are in place but not working properly together
  - Business and IT don’t always understand each other
- People related issues:
  - Team members are new. Unknown with the organization itself
  - Quality of the people is immature
  - Business users are subject matter experts but immature in software development
  - Business users are aging
- Business is suffering several questions related to the project

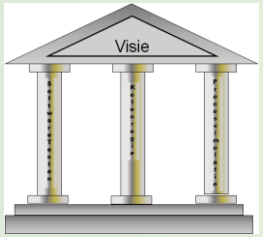
Project assignment



- Explore the quality of the new information system
- Collect the answers for the following questions:
  - Are we able to use the information system?
  - Is business continuity guaranteed?
  - Is the quality level guaranteed?
  - Are we able to go live?
  - Is the development process a trusted process?

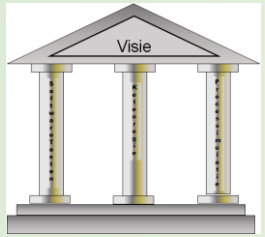
The answer is quality monitoring

Quality monitoring



“Are we able to work with the information system in a proper way without damages where business process, users, the required product and customers closely come together to reach the defined goals in a smooth way”

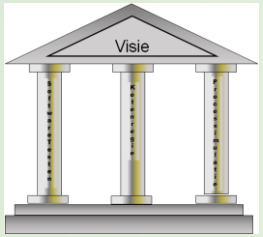
Quality monitoring



By hand of quality monitoring an integral quality coherence is organised from a broad perspective to achieve a successful implementation together with all relevant stakeholders causing:

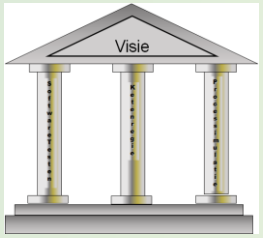
- Current insight of the quality is available
- Adjustment is possible where necessary
- All required products are delivered by involved departments / external parties
- Required quality level is fullfilled:
  - Requirements realized
  - Acceptance criteria / Definition of Done (DoD) is reached

Quality monitoring, responsibilities



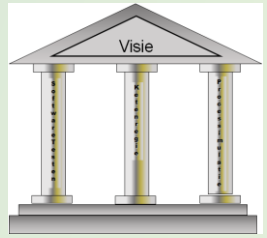
- Develop the required quality monitoring methods
- Develop the required instruments / tools
- Collect objective observations and report them to top management

Principles



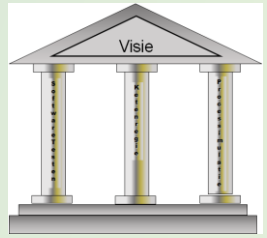
- Objective observations is the base for quality monitoring
- The right to talk with all parties, reviewing products, documentation, testware etc.
- Full cooperation of all involved teams
- Transparency in the results
- Combine quality monitoring with the several development trains
- Initiate solutions for issues
- Scope is ISO25025; Systems and software Quality Requirements and Evaluation (SQuaRE) — Measurement of IT service quality
- Result of the program above people
- Accountability to audit / steering committee

Basic approach



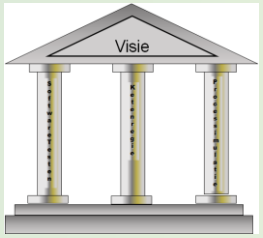
- 4 areas of interest:
  - Development process
  - Product quality
  - Acceptance and chain testing
  - Quality of implementation
- Per program increment determination of the scope
- Discuss the approach with the relevant stakeholders. Key message is no surprises

Basic approach(2)



- Determine the technique of quality monitoring:
  - Document review
  - Participation in meetings
  - Process simulation (developent and/or business)
  - Review testware
  - Execution of tests in specific test environment
- Collect findings and discuss these with the stakeholders
- Look together for solutions. After agreement registration in availabe tooling
- Execute periodically an overall assessment

Governance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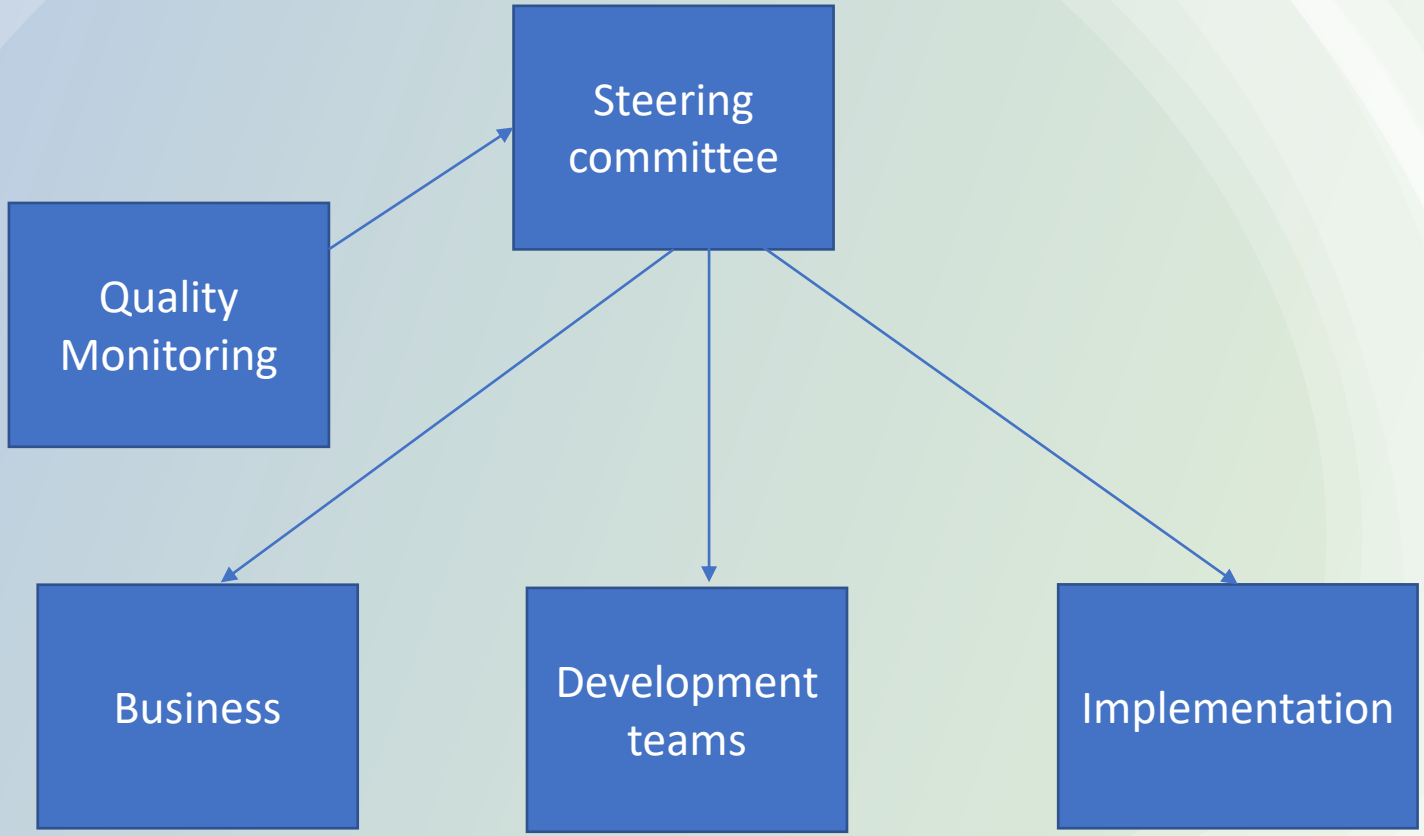
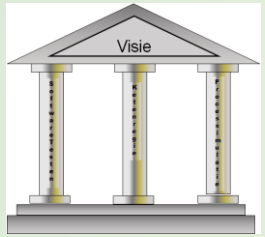

Steering committee
Quality Monitoring
Business
Development teams
Implementation

Dashboard



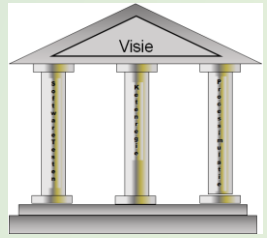
Dashboard: Progress

Businessproces	EPIC	Processtep	Acc. Crit.	PI-number	Features designed		Usecases designed	Usecases	Acc. / chain testing executed	Implementation readiness	After care
					Validated y/n		Validated y/n	realized y/n	Fr/ NFR	y/n	
BP2	BP22	BP221		2021-1	12		1	j	n	j	j
			Req 1					j			
			Req 2					j			
			PRA 1					j			
			C1					j			
			O1					n			
		BP222		2021-2	3		4				
		BP223					3				

Dashboard: defects

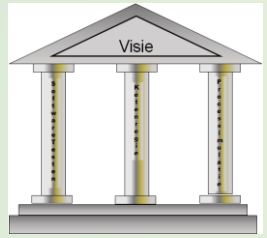
Business Proces	Processtep	Priority		Total Priority	Severity		Total severity
		Open per priority	Closed per priority		Open per severity	Closed per Severity	
BP1							
	BPps1	3	4	7	4	5	9
	BPps2	1		1	1	1	1
	BPps3	5		5	4		4
Total							

Dashboard



Dashboard: zero measurement			
Metrics	**PI Increment 1**	**PI increment 2**	**PI increment N**
Ready for release release (norm = 5 defects per Function Point (FP))	300	234	123
Rayleigh curve			
Value added per FP per PI (planned vs realized)	80/75	80/80	80/60
PBS / Epic	complete	complete	incomplete
MVP	incomplete	incomplete	complete
Velocity	50	55	54
Configuration management	3	2	0
Data comparison test	<0	<0	0

Dashboard



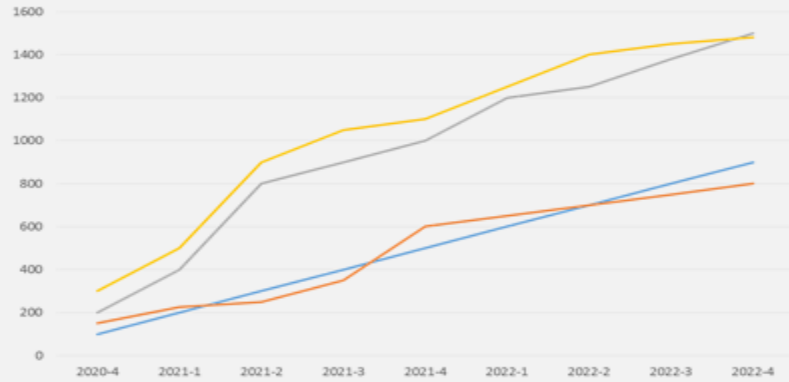
Planning

Program Mandate	78%		wo 20-jan-21
Product Decompositie	80%		ma 1-feb-21
Planning	60%		ma 1-feb-21
Program Assurance	33%		wo 30-jun-21
Quality Assurance	12%		vr 31-dec-21

Remarks

Finance

Planned vs realized



No action required

Project

Quality

Epic	Ready for deployment	Quality during production
Enablers		
Epic A		
Epic B		
Epic C		
Epic D		

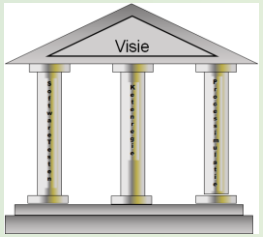
C2A; solve the bugs

Risk

Risk	Description	Status
Risk 1	Stakeholders are not involved on a proper way	
Risk 2		
Risk 3		
Etc.		

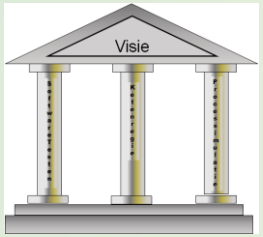
Mitigate the risks with status red

What are the results?



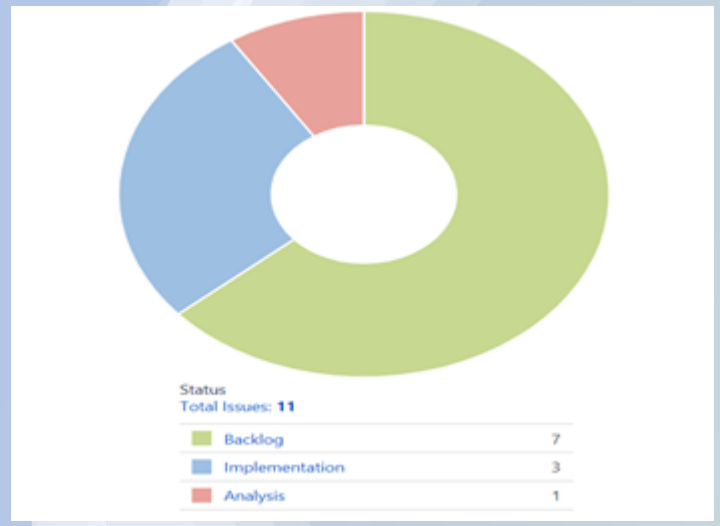
- Development process of view:
  - Improvement in the releasetrain
  - Improvement in estimation of the calculated work
  - Right people on the right place (quality & quantity)
  - A more solid development process
- Product point of view:
  - Completeness of the delivered service
  - Increasing coverage degree
  - (extra) knowledge transfer
  - Functional & non functional testing organized
  - More robustness of the software
  - Number of findings is increasing

What are the results? (2)

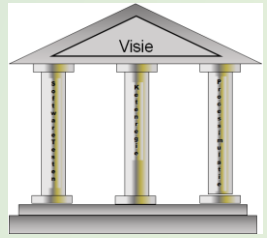


- Acceptance & chain testing:
  - Interfaces are fully covered
  - Increasing coverage degree
  - Business users are fully involved
- Implementation:
  - Business is able to work with the new information system
  - Coherence between several programs

What are the results? (3)

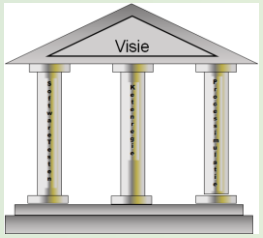


Challenges coming period



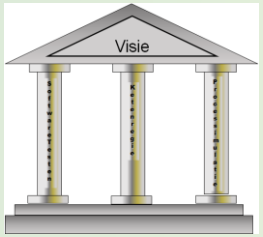
- Reaching the milestones?
- Delivering the required quality
- Are the development teams stable enough
- Support from top management
- Introducing new methods and techniques
- Finding techniques to verify the required completeness of the software

Tooling



- Own dashboards:
  - Excel
  - Fortess change cloud
- Jira
- Confluence
- Bitbucket
- Robot Framework
- Jenkins

Future work



- Gain more experience
- Develop further the project dashboards
- Secure the experiences in presentations and articles
- Spread the knowledge / approach over other related programs
- Finish the program succesfully at the end of 2025
- Increase the automation of the presented dashboards

Questions?

Thanks for your attention.

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