

Agile Software Development

Motivations, Barriers and Benefits

OPTIMA



CONSULTING





ABOUT US

- Sylvain Chery, Director (www.agilepartner.net)

- ◇ Software Architecture and Development
 - ◇ SOA consulting, design and implementation
 - ◇ Requirements analysis, business process design, software engineering, deployment, maintenance

- ◇ Targeted Tools & Solutions
 - ◇ Microsoft Dynamics CRM 4.0, SQL Server 2005, Microsoft Office SharePoint Portal Server 2007, Jahia...

- ◇ Development Teams Support
 - ◇ Software development process coaching (agile methods)
 - ◇ Project Management
 - ◇ Technical trainings



Optima Consulting

- ◇ Stéphane Carré, Director (www.optimaconsulting.lu)
- ◇ Independent company specialised in software development
 - ◇ Engineering tools for analysis of radio-communication systems
 - ◇ Databases, datawarehouses
 - ◇ Specialised ERP systems
 - ◇ Performance analysis management tools
 - ◇ Geographical Information Systems
 - ◇ Geographical data analysis (2D and 3D)
 - ◇ Vehicle tracking
- ◇ Early adopters of agile methodologies
 - ◇ eXtreme Programming (since 2000)
 - ◇ Scrum
- ◇ Coaching and consultancy services in agile software project management

INTRODUCTION

Motivations



○ Top-Down

- “We need these new features before our competitors!”
- “Our users are not satisfied with the system!”
- “Too many projects fail! (late, over budget, low quality, or even never delivered)”
- “The progress reports are inaccurate, the development team never holds its promises, I can’t trust them!”



○ Bottom-Up

- “We have such limited resources, we must optimize their activity”
- “Our process is too bureaucratic, we waste so much time writing useless docs and attending inefficient meetings!”
- “The priorities change so often, how can we manage it?”
- “The requirements are unclear, it would take months before we clarify them all and start developing!”
- “The users don’t know what they want!”

Barriers



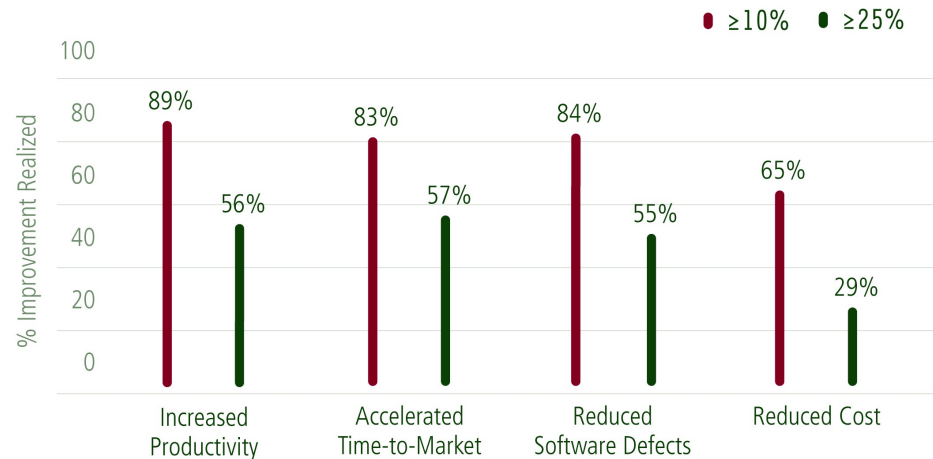
- ◇ Changing the organisational culture
 - ◇ Self-Organising Team approach of agile may be incompatible with Command and Control style of management
 - ◇ Dependency on non agile elements require adapting agile process
- ◇ General resistance to change
 - ◇ Developers generally accept agile with combination of scepticism, enthusiasm and cautious optimism, but...
 - ◇ Agile processes value code production over non-code artefacts, but developers like non code artefacts far more than they admit
- ◇ Personnel with the necessary agile experience
- ◇ Upper management concerns
 - ◇ How can we promise new features to customers ?
 - ◇ How do we track progress ?
 - ◇ How will the agile process impact other groups ?
 - ◇ When does the project end ?

Benefits



- For the project team
- For the top management / executives
- For the users / customers

Please try to estimate specific improvements you have actually realized from implementing Agile practices?



Source: VersionOne 2008 State of Agile Development Survey

Patterns of agile adoption



- ◇ Start Small ?
 - ◇ (+) minimal cost of mistakes
 - ◇ (-) dependency on non-agile elements, and potentially inconclusive
- ◇ ... or Go All In ?
 - ◇ (+) shows management commitment, no dependency on non-agile
 - ◇ (-) steep learning curve, significant results may be delayed
- ◇ Stealth mode ?
 - ◇ (+) can wait until success or after successful adjustments are made to reveal the method
 - ◇ (-) no organisational support
- ◇ ... or Public Display of Agility ?
 - ◇ (+) no backing away, strong commitment, planning to succeed
 - ◇ (-) focus everyone's attention, with potentially no second chance

Customer testimonial: Agile Product Development

Stefan Engels

Managing Director

Commsquare

stefan@commsquare.com

Commsquare

- ◇ Privately owned and independent company founded in 2002
- ◇ HQ in Mechelen, Belgium. Offices in Greece and UK
- ◇ 35 employees
- ◇ 50 customers in 25 countries: e.g. Proximus, Vodafone, Orange, T-Mobile, Motorola, NSN, Option, etc.
- ◇ 3 competence areas
 - ◇ Radio technology (GSM, UMTS)
 - ◇ IP & applications
 - ◇ Software / IT
- ◇ Services & products
 - ◇ Technology consultancy & training
 - ◇ DataMon: HW/SW probe: performance analysis of mobile data networks & mobile data applications

Traditional Approach (1)

- ◇ 1998-2001: Product Manager/Director at UK start-up Actix.
 - ◇ One-product company
 - ◇ Highly successful
- ◇ Traditional product development approach
 - ◇ requirements capture; specifications writing; specifications sign-off; architecture; development/coding; testing; beta release
- ◇ Drawbacks of approach
 - ◇ No visibility on progress
 - ◇ usually late, “just give us 2 more weeks to finish it”
 - ◇ Trade-off scope-quality-time decided by SW development individuals/team, not by PM (i.e. not driven by business value)
- ◇ No way to deal with changing customer requirements or respond to competition

Traditional Approach (2)

- ◇ Drawbacks of approach – cont'd
 - ◇ No visibility on what you will get – in the end, you never get what you had in mind although the SW team worked very hard
 - ◇ Usually no working prototype during development cycle (only beta version at the end)
 - ◇ Testing at the end; unpredictable quality; unpredictable time to fix; often long “beta” releases with friendly customers
 - ◇ Compare with HW design: testing is integral part of design phase
 - ◇ (Note: interim patches to fix critical bugs)
 - ◇ Long development cycles, no business value in the mean time
 - ◇ No feedback loop between developer and PM during development (usually no interim prototypes)
 - ◇ Speaking about future product to customers: slide-ware; roadmaps you can't commit to;

Traditional Approach (3)

- ◇ “Advantages” of approach
 - ◇ Product Sales & Marketing people love traditional roadmaps. Many are trained to sell slide-ware.
 - ◇ BUT company’s reputation is at risk if you promises for next release are not met !

Commsquare internal development

- ◇ All employees are telecom, ICT, SW engineers
- ◇ Engineers like to develop their own tools
- ◇ Characteristics
 - ◇ Often great idea/concept and very useful functionality
 - ◇ Can only be maintained/changed by creator
 - ◇ Not tested; Impossible to commercialise
 - ◇ No visibility on cost
 - ◇ No reuse of SW (no coding standard, different languages, etc.)

Commsquare product development

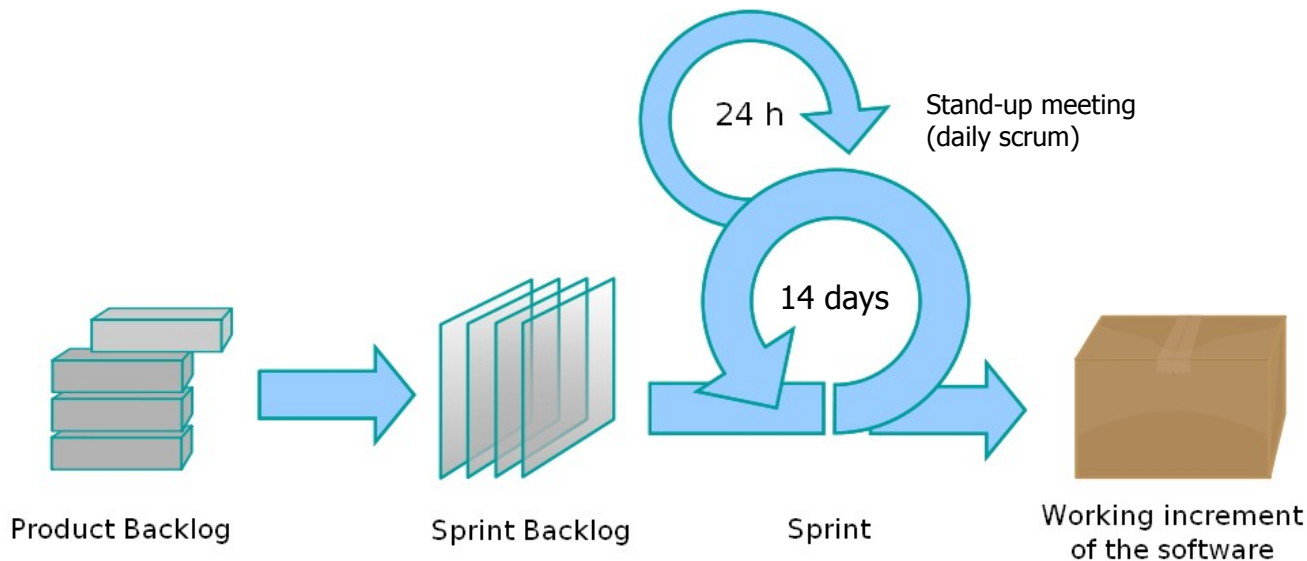
- ◇ Internal tools often have a market value
- ◇ How can we turn an internal tool into a commercial tool?
 - ◇ Creator of internal tool is not a SW engineer
 - ◇ Initial choice: “self-organising” team with 2 developers and 1 product manager (=creator of internal tool)
 - ◇ PM could still develop functionality faster than development team (quick & dirty proto-typing)
 - ◇ Emotional element: PM was loosing his baby; let “them” prove that they are better than me (in SW development)
 - ◇ Didn’t work
 - ◇ Management decision: we need to adopt proper methodology (but I didn’t want traditional way because of previous experience)

Commsquare product development

- ◇ Stefan Engels' view on building a new commercial product
 - ◇ Commsquare had internal tool “DataMon”
 - ◇ “Tailor” DataMon for 5 friendly customers (they are using the tool and are paying – but they also know this is a new product still being developed)
 - ◇ Then build one commercial product based on foundation of these 5 customers
- ◇ Requirements for this approach:
 - ◇ Deliver useful functionality / bring value to your friendly customers
 - ◇ Deliver stable, reliable product
 - ◇ This is when you make or break your reputation as a product company

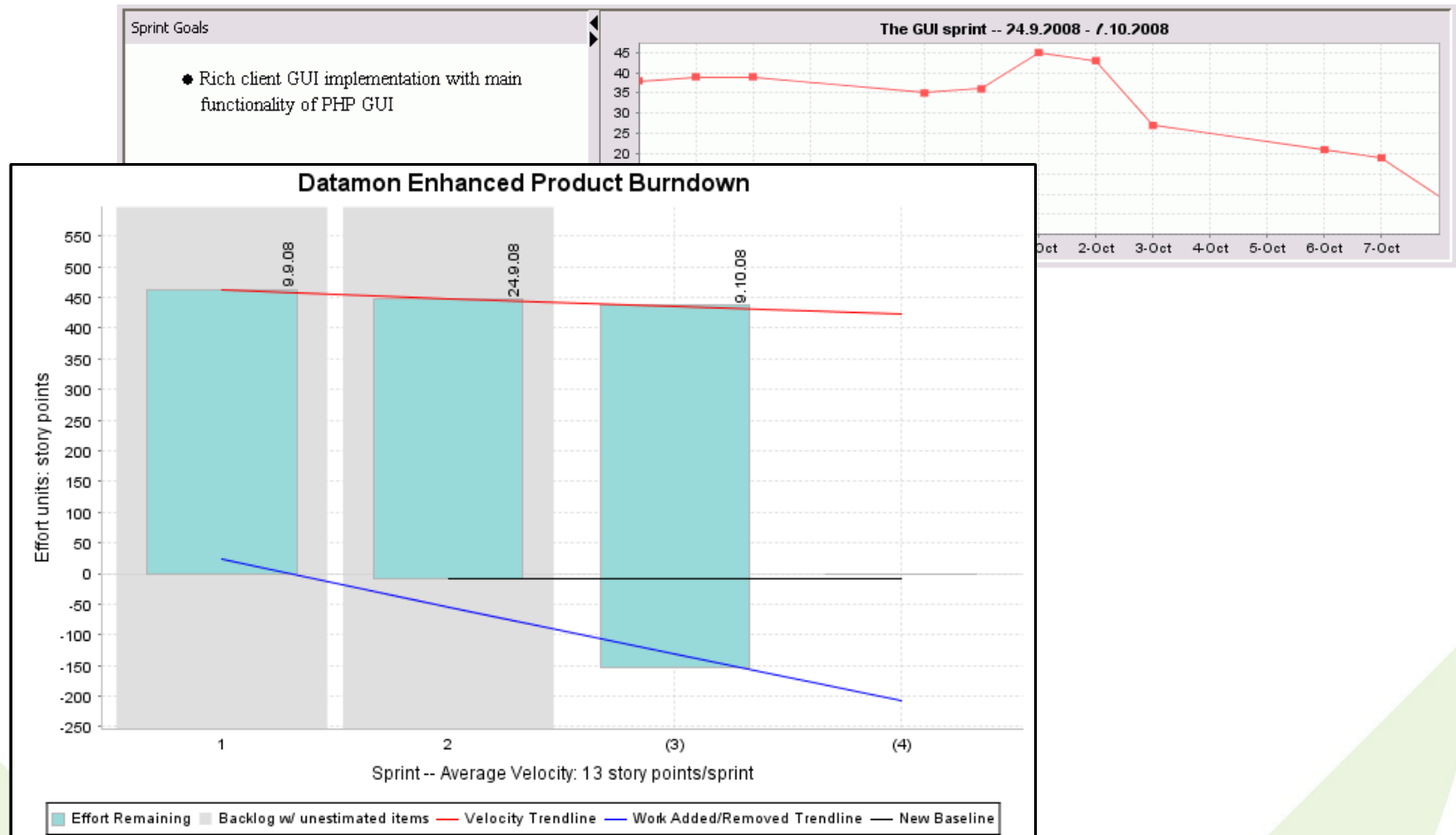
Agile development - principles

- ◇ Commsquare has chosen:
 - ◇ Sprint duration of 2 weeks
 - ◇ Product release cycle equal to 1 sprint
 - ◇ ScrumWorks as tracking tool
 - ◇ Duo-role for scrum master (with clear lead)
 - ◇ Duo-role for product owner (with clear lead)



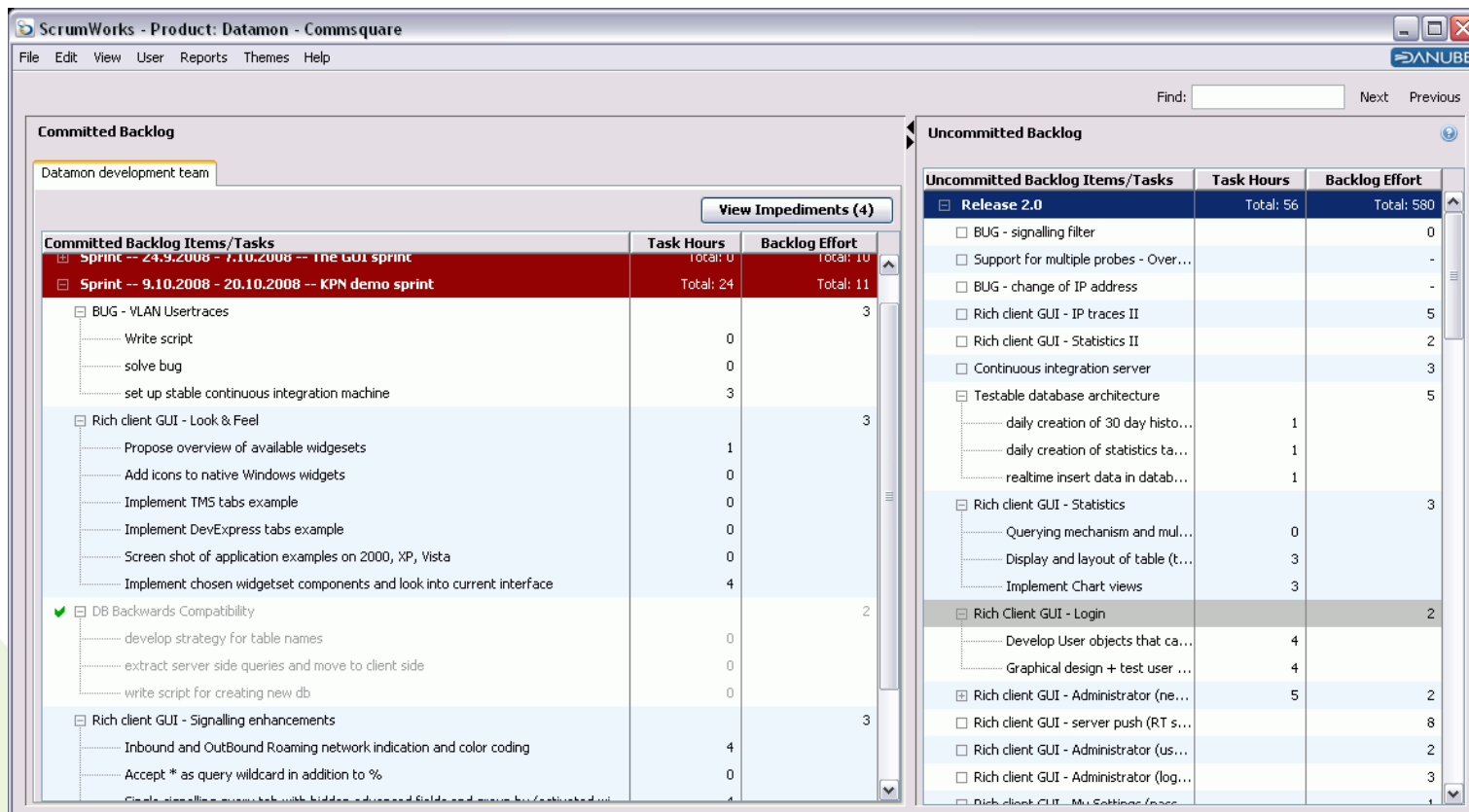
Agile development - advantages

◊ Visibility on progress



Agile development - advantages

- ◊ Visibility on functionality, clear priorities (even within sprint)
 - ◊ Sprint demo
 - ◊ Product and sprint backlog



The screenshot shows the ScrumWorks interface for a project named 'Product: Datamon - Commsquare'. It displays two main views: 'Committed Backlog' and 'Uncommitted Backlog'.

Committed Backlog: This view shows tasks that are currently in progress or planned for the current sprint. It includes a table with columns for 'Task Hours' and 'Backlog Effort'.

Committed Backlog Items/Tasks	Task Hours	Backlog Effort
Sprint -- 24.9.2008 - 7.10.2008 -- The GUI sprint	Total: 0	Total: 10
Sprint -- 9.10.2008 - 20.10.2008 -- KPN demo sprint	Total: 24	Total: 11
BUG - VLAN Usertraces		3
- Write script	0	
- solve bug	0	
- set up stable continuous integration machine	3	
Rich client GUI - Look & Feel		3
- Propose overview of available widgetsets	1	
- Add icons to native Windows widgets	0	
- Implement TMS tabs example	0	
- Implement DevExpress tabs example	0	
- Screen shot of application examples on 2000, XP, Vista	0	
- Implement chosen widgetset components and look into current interface	4	
DB Backwards Compatibility		2
- develop strategy for table names	0	
- extract server side queries and move to client side	0	
- write script for creating new db	0	
Rich client GUI - Signalling enhancements		3
- Inbound and Outbound Roaming network indication and color coding	4	
- Accept * as query wildcard in addition to %	0	

Uncommitted Backlog: This view shows tasks that are not yet committed to the current sprint. It also includes a table with columns for 'Task Hours' and 'Backlog Effort'.

Uncommitted Backlog Items/Tasks	Task Hours	Backlog Effort
Release 2.0	Total: 56	Total: 580
BUG - signalling filter		0
Support for multiple probes - Over...		-
BUG - change of IP address		-
Rich client GUI - IP traces II		5
Rich client GUI - Statistics II		2
Continuous integration server		3
Testable database architecture		5
- daily creation of 30 day histo...	1	
- daily creation of statistics ta...	1	
- realtime insert data in datab...	1	
Rich client GUI - Statistics		3
- Querying mechanism and mul...	0	
- Display and layout of table (t...	3	
- Implement Chart views	3	
Rich Client GUI - Login		2
- Develop User objects that ca...	4	
- Graphical design + test user ...	4	
Rich client GUI - Administrator (ne...	5	
Rich client GUI - server push (RT s...		8
Rich client GUI - Administrator (us...		2
Rich client GUI - Administrator (log...		3
Rich client GUI - My Settings (see...		1

Agile development - advantages

- ◇ Quick reaction time when changing requirements
 - ◇ Can be dealt with in next sprint
- ◇ Development team focuses on delivering working functionality
 - ◇ Needs discipline to stay focus on sprint items
 - ◇ Needs to demo results at end of each sprint
- ◇ Testing integral part of development
 - ◇ Needs discipline
 - ◇ No compromises on quality

Agile development – Do's & Don'ts

- ◇ Seek professional advice – coaches experienced in agile methodologies
 - ◇ Avoid mistakes in implementing the agile approach
 - ◇ Avoid going back to 'old way of doing things'
 - ◇ Minimise risk of not fully benefiting from method

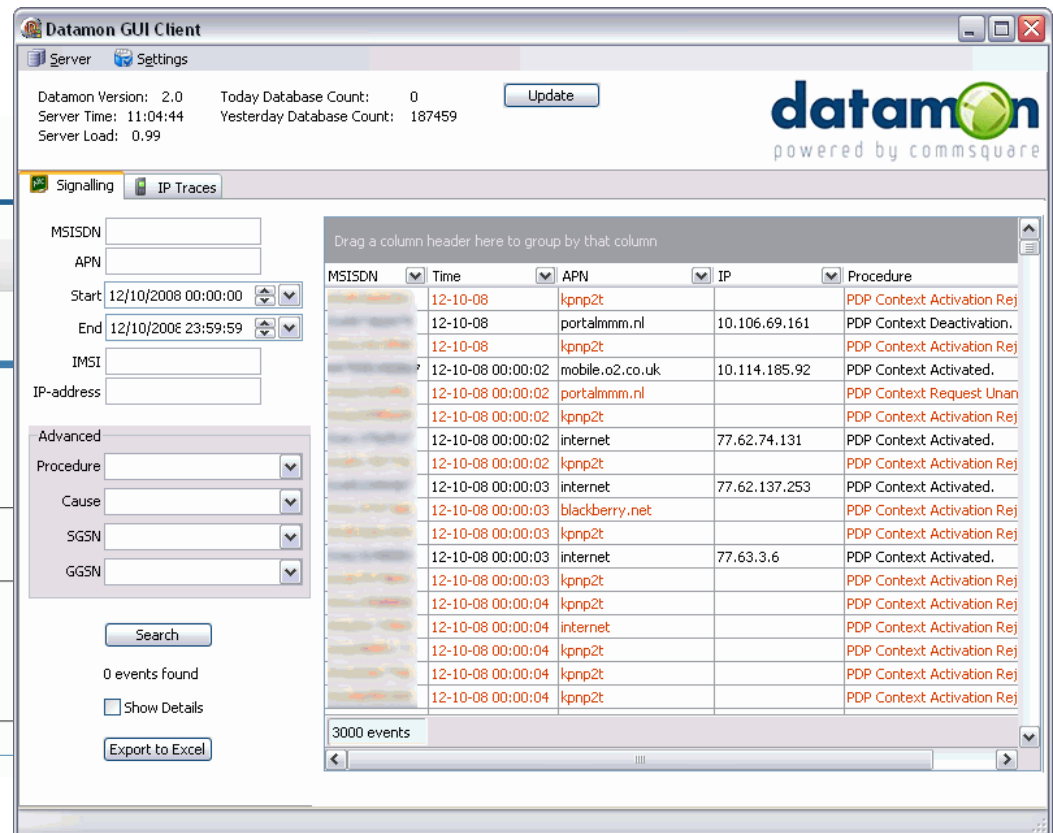
- ◇ Clear roles
 - ◇ Towards sales (who just needs that little feature to close the next deal)
 - ◇ Towards development: refactoring is the mean to build good software; but not the goal – we don't start with the idea of building a framework
 - ◇ Towards product owner: no interference during sprint

Agile development – Do's & Don'ts

- ◇ Stick to the methodology
 - ◇ Define clear sprint goal
 - ◇ No compromises on quality (test-driven!)
 - ◇ Clear priorities within sprint: only trade-off can be made on scope (i.e. items completed in sprint) (time is not a trade-off because sprint duration is fixed)
 - ◇ No changes in priorities within sprint
 - ◇ Work on sprint items sequentially, not in parallel

Agile development – Do's & Don'ts

- When starting from a prototype:
 - Don't copy. Instead think in terms of user functionality: what is this supposed to do? How will the user use this?



Agile development – limitations & risks

- ◊ When starting from a prototype:
 - ◊ Creator might not be best Product Owner (initially)
- ◊ First planning games take long
 - ◊ Because product backlog is long
- ◊ Initially team tends to underestimate tasks & effort
 - ◊ Could lead to frustration for all (developers; product owner; management) – this is the learning curve
- ◊ 2-weekly “deadlines”: perceived (by developers) as very intense
 - ◊ Team needs to adopt a normal working regime it can sustain

Conclusion

- ◇ Commsquare has successfully introduced Agile methodology
 - ◇ Using SCRUM and XP
- ◇ Major learning effect (on methodology) took 2 sprints (4 weeks) only
- ◇ Excellent way to deliver reliable functionality with visibility
- ◇ Positive effect on people involved
 - ◇ Developers: clear objectives (sprint), manageable pieces of functionality, short feedback cycle (sprint demo)
 - ◇ Product Owner: visibility
 - ◇ Customers: additional functionality, reliable
 - ◇ Sales: use “agile” as a sales argument (backdoor for quick hack is closed)

CONCLUSION

Status of agile adoption

- ◇ Agile is now mainstream (2006-2008)
 - ◇ 69 % of organisations involved in SW development are doing one or more agile project, of which 82% are beyond pilot project phase (source: DDJ Agile Adoption Rate Survey - Feb 2008)
 - ◇ Used in major projects (> 10000 man days)
 - ◇ Field proven in distributed teams (although with higher risk factor)
 - ◇ Used in all fields of SW development (telecom, banking, consumer)
- ◇ Agile receives a lot of attention from recognised project management organisations (e.g. PMI)
- ◇ Agile champions within an organisation evolve towards upper management (from developer, team leader, then PM)
 - ◇ reflecting evidence that agile processes are delivering value
- ◇ Should agile skills and capabilities be certified ?
 - ◇ Long standing “Certified Scrum Master” (Scrum Alliance)
 - ◇ Agile Alliance firmly against anything but recognition by peers



Agile Interest Group Luxembourg

- **Objectives** : knowledge sharing & promoting agility in Luxembourg
- **Community tools**: blog, mailing lists, social networks
- ◊ **Activities**
 - ◊ Collaboration with other communities and organisations
 - ◊ Events, workshops, learning games, “Open Space”...
 - ◊ Publications: articles...
- **Supported by** Agile Alliance, Scrum Alliance and corporate sponsors
- ◊ Certifications?

Interested? Join us! www.agile-lu.org

Next event: First Tuesday November 4th



Questions

Thank you!

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