From Waterfall to Evo

firm

Future Information Research Management

Tom & Kai Gilb version of Trond Johansen's Presentation

Trond Johansen, QA & Process Manager, FIRM AS

Trond.Johansen@firmglobal.com

1

FIRM R&D department

- Developers (13)
- Management/(CSO) (2)
- Tech Support NY (1)
- Microsoft .NET framework, SQL

- SEPG group (3) with responsibility process improvement and quality assurance (QA).
  - Configuration Management, setup ++
  - Testing
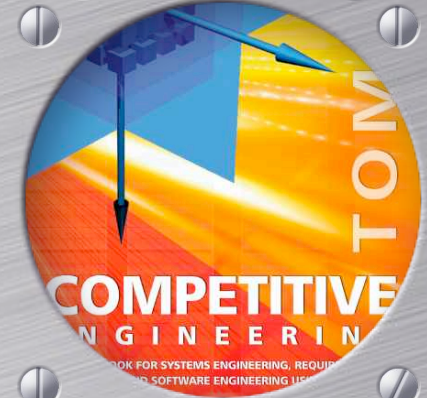 - Software Process Improvement (SPI)

Customer Successes in Corporate Sector
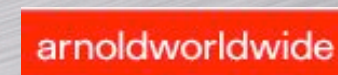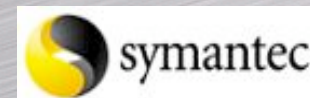
Basis for the 3 month trial period

- a **one day crash course** with Tom and Kai Gilb
- and a **literature study**:
  - "Competitive Engineering" by Tom Gilb,
  - "Evo" by Kai Gilb,
  - and other material on the subject.

FIRM's interpretation of Evo Method

our overall understanding of EVO was this:

- **Find stakeholders** (End users, super-users, support, sales, IT Operations etc)
- Define the stakeholders' **real needs** and **the related Product Qualities**
- **Identify past/status** of product qualities **and your goal** (how much you want to improve)
- Identify possible **solutions** for meeting your goals
- **Develop a step-by-step plan** for
  - delivering improvements
  - with respect to Stakeholder Values & Product Quality goals:
    - Deliveries every week
    - Measure: are we moving towards our goals?

Paradigm Shift

With EVO, our requirements process changed.

Previously we focused mostly on **function requirements.**

We realized that **it's the product *quality* requirements that** really **separate us from our competitors**.

6

Our new Requirement 'standards'

We tried to **define** our **requirements** according to a **basic standard** given by Gilb

- ☑ Clear & Unambiguous
- ☑ Testable
- ☑ Quantified
- ☑ No Solutions (Designs)
- ☑ Stakeholder Focus

7

Real Requirements Example

- The focus is here on the **day-to-day operations** of our MR users,
  - **not a list of features that they might or might not like.**
  - **We KNOW that increased efficiency which leads to more profit will please them.**
  - 45 min * thousands of reports=$$$ saved
- After **one week** we had **defined** more or less **all the requirements** for the next version of Confirmit.

Real Requirements Example

Usability.Productivity *(taken from Confirmit 8.5 development)*

Scale: Time in minutes to set up a typical specified MR-report

Past: 65 min,

Tolerable: 35 min,

Goal: 25 min

end result was 20 min :-)

Meter: Candidates with Reportal experience and with knowledge of MR-specific reporting features performed a set of predefined steps to produce a standard MR Report. (The standard MR report was designed by Mark Phillips, an MR specialist at our London office)

Solutions

- **For every quality requirement we looked for possible Solutions (Design Ideas)**
  - E.g. for Quality Requirement: Usability.Productivity we identified the following Design Ideas:
    - **DesignIdea.Recoding**
    - **DesignIdea.MRTotals**
    - **DesignIdea.Categorizations**
    - **DesignIdea.TripleS**
    - **..and many more**
- We evaluated all these, and specified in more detail those we believed would add the **most value** (take us closer to the goal)

IET, project step planning and accounting: using an Impact Estimation Table

- IET for MR Project – Confirmit 8.5
- **Solution:** Recoding
  - Make it possible to recode variable on the fly from Reportal.
  - Estimated effort: 4 days
  - Estimated Productivity Improvement: 20 minutes (50% way to Goal)
  - actual result 38 minutes (95% progress towards Goal)

	A	B Current Status	Improvements		Goals			Step9 Recoding			
								Estimated impact		Actual impact	
		Units	Units	%	Past	Tolerable	Goal	Units	%	Units	%
6					Usability.Replacability (feature count)						
7		1,00	1,0	50,0	2	1	0				
8					Usability.Speed.NewFeaturesImpact (%)						
9		5,00	5,0	100,0	0	15	5				
10		10,00	10,0	200,0	0	15	5				
11		0,00	0,0	0,0	0	30	10				
12					Usability.Intuitiveness (%)						
13		0,00	0,0	0,0	0	60	80				
14					Usability.Productivity (minutes)						
15		20,00	45,0	112,5	65	35	25	20,00	50,00	38,00	95,00
20					Development resources						
			101,0	91,8	0		110	4,00	3,64	4,00	3

EVO Plan Confirmit 8.5
4 more product areas were attacked concurrently

Impact Estimation Table: Reportal codename "Hyggen"

Current Status	Improvements		Reportal - E-SAT features		
Units	Units	%	Past	Tolerable	Goal
			Usability.Intuitivness (%)		
75,0	25,0	62,5	50	75	90
			Usability.Consistency.Visual (Elements)		
14,0	14,0	100,0	0	11	14
			Usability.Consistency.Interaction (Components)		
15,0	15,0	107,1	0	11	14
			Usability.Productivity (minutes)		
5,0	75,0	96,2	80	5	2
5,0	45,0	95,7	50	5	1
			Usability.Flexibility.OfflineReport.ExportFormats		
3,0	2,0	66,7	1	3	4
			Usability.Robustness (errors)		
1,0	22,0	95,7	7	1	0
			Usability.Replacability (nr of features)		
4,0	5,0	100,0	8	5	3
			Usability.ResponseTime.ExportReport (minutes		
1,0	12,0	150,0	13	13	5
			Usability.ResponseTime.ViewReport (seconds)		
1,0	14,0	100,0	15	3	1
			Development resources		
203,0			0		191

Current Status	Improvements		Survey Engine .NET		
Units	Units	%	Past	Tolerable	Goal
			Backwards.Compatibility (%)		
83,0	48,0	80,0	40	85	95
0,0	67,0	100,0	67	0	0
			Generate.WI.Time (small/medium/large seconds)		
4,0	59,0	100,0	63	8	4
10,0	397,0	100,0	407	100	10
94,0	2290,0	103,9	2384	500	180
			Testability (%)		
10,0	10,0	13,3	0	100	100
			Usability.Speed (seconds/user rating 1-10)		
774,0	507,0	51,7	1281	600	300
5,0	3,0	60,0	2	5	7
			Runtime.ResourceUsage.Memory		
0,0	0,0	0,0		?	?
			Runtime.ResourceUsage.CPU		
3,0	35,0	97,2	38	3	2
			Runtime.ResourceUsage.MemoryLeak		
0,0	800,0	100,0	800	0	0
			Runtime.Concurrency (number of users)		
1350,0	1100,0	146,7	150	500	1000
			Development resources		
64,0			0		84

Current Status	Improvements		Reportal - MR Features		
Units	Units	%	Past	Tolerable	Goal
			Usability.Replacability (feature count)		
1,0	1,0	50,0	14	13	12
			Usability.Productivity (minutes)		
20,0	45,0	112,5	65	35	25
			Usability.ClientAcceptance (features count)		
4,4	4,4	36,7	0	4	12
			Development resources		
101,0			0		86

Current Status	Improvements		XML Web Services		
Units	Units	%	Past	Tolerable	Goal
			TransferDefinition.Usability.Efficiency		
7,0	9,0	81,8	16	10	5
17,0	8,0	53,3	25	15	10
			TransferDefinition.Usability.Response		
943,0	-186,0	######	170	60	30
			TransferDefinition.Usability.Intuitiveness		
5,0	10,0	95,2	15	7,5	4,5
			Development resources		
2,0			0		48

The Evo cycle

- We decided that
  - **one EVO step should last one week**
    - because of practical reasons,
    - even though we violate the Evo policy guideline of not spending more than 2 % of project schedule, in each step.

FIRM EVO week

|	Development Team	Users (PMT, Pros, Doc writer, other)	CTO (Sys Arch, Pro cess Mgr)	QA (Configuration Manager & Test Manager)
Friday	♉ PM: Send Version N detail plan to CTO + prior to Project Mgmt meeting ♉ PM: Attend Project Mgmt meeting: 12.0 0-15.00 ♉ Developers: Focus on genereal maint enance work, documentation.		♉ Approve/reject design & Step N ♉ Attend Project Mgmt meeting: 12 -15	♉ Run final build and create setup for Version N -1. ♉ Install setup on test servers (e xternal and inte rnal) ♉ Perform initi al crash t est and then release Ve r sion N -1
Monday	♉ Develop test code & code for Version N	♉ Use Version N -1		♉ Follow up CI ♉ Review test plans, tests
Tuesday	♉ Develop Test Code & Code for Version N ♉ Meet with users to Discuss Action Taken Regarding Feedback From Version N -1	♉ Meet with develo pers to give Fee dback and Discuss Action Taken from previous actions	♉ System Architect to review code and test code	♉ Follow up CI ♉ Review test plans, tests
Wednesday	♉ Develop test code & code for Version N			♉ Review test pl ans, tests ♉ Follow up CI
Thursday	♉ Complete Test Code & Code for Version N ♉ Complete GUI tests for Version N -2			♉ Review test plans, tests ♉ Follow up CI

The Project Managers Meeting

- Project management meetings on Fridays,
  - each project leader **presents the results** from the **previous** step (IET)
  - as well as the **content of next EVO step** (one week)
- Possible new Solutions are
  - discussed and
  - weighted against each other:
    - **Most value for development resources**

Experiences and Conclusions
Product Qualities

- We launched our first major release based on Evo in May 2004
  - and we have already gotten feedback from users on some of the **leaps in product qualities.**
    - E.g. the time for the system to generate a complex survey has gone **from 2 hours (=wait for the system to do work) to 15 seconds!**
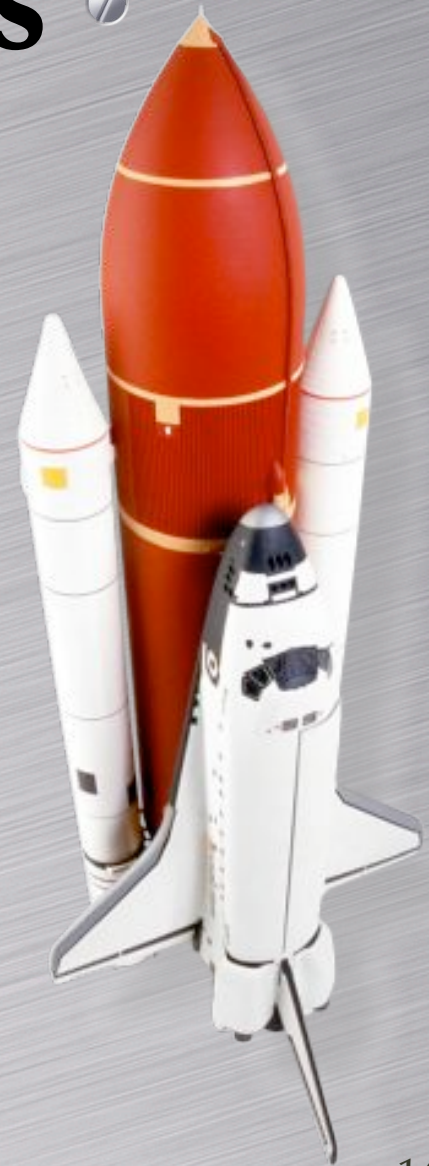
Experiences and Conclusions
Developers

- EVO has resulted in
  - increased **motivation** and **enthusiasm** amongst developers,
  - it opens up for **empowered creativity**

Experiences and Conclusions
Developers

- Developers
  - **embraced the method** and
  - **saw the value of using it**,
  - even though they found parts of Evo difficult to understand and execute

Experiences and Conclusions Project Leaders

- Project leaders feel:
  - Defining good requirements can be hard.
  - It was hard to find meters which were practical to use, and at the same time measure real product qualities.
  - Sometimes we would like to spend more than a day on designs, but this was not right according to our understanding of Evo. (Concept of backroom activity was new to us)
  - Sometimes it takes more than a week to deliver something of value to the client. (Concept of backroom activity was new to us)

Experiences and conclusions

- Team members (developers)
  - "Sometimes it felt like we're rushing to the next weekly step before we had finished the current step"
  - Testing was sometimes postponed
    - in order to start next step,
    - some of these test delays were not compensated for up in later testing.

Evo's impact on Confirmit product qualities

- The impact described is based on:
  - Internal usability test, productivity tests ++
  - Performance tests carried out at Microsoft Windows ISV laboratory in Redmond USA
  - Direct customer feedback
    - "I just wanted to let you know how appreciative we are of the new "entire report" export functionality you recently incorporated into the Reportal. It produces a fantastic looking report, and the table of contents is a wonderful feature. It is also **a HUGE time saver."**
  - These leaps in product qualities would not have been achieved without Evo.

EVO's impact on Confirmit product qualities

- Only highlights of the impacts are listed here

Description of requirement/work task	Past	Status
Usability.Productivity: Time for the system to generate a survey	7200 sec	15 sec
Usability.Productivity: Time to set up a typical specified Market Research-report (MR)	65 min	20 min
Usability.Productivity: Time to grant a set of End-users access to a Report set and distribute report login info.	80 min	5 min
Usability.Intuitiveness: The time in minutes it takes a medium experienced programmer to define a complete and correct data transfer definition with Confirmit Web Services without any user documentation or any other aid	15 min	5 min
Performance.Runtime.Concurrency: Maximum number of simultaneous respondents executing a survey with a click rate of 20 sec and an response time<500 ms, given a defined [Survey-Complexity] and a defined [Server Configuration, Typical]	250 users	6000

Lessons learned

- We will have increased **focus on feedback from clients.** We will select the ones that are willing to dedicate time to us.

- Demonstrate new functionality with screen recording software or early test plans >> easier for internal stakeholders to do **early testing.**

- Tighter integration between EVO and the test process.

- Plan for less, and deliver less better!

23

Conclusions - 1

- The method's **positive impact** on Confirmit product qualities has convinced us that
  - Evo is a better suited development process than our former waterfall process, and
  - we will continue to use Evo in the future.
- What **surprised** us the most was
  - the method's **power of focusing on delivering value** for clients versus cost of implementation.
  - Evo enables you to **re-prioritize** the next development-steps based on the weekly feedback
  - What seemed important
    - at the start of the project
    - may be replaced by other solutions
    - based on gained knowledge from previous steps.
- The method has
  - high focus on **measurable product qualities**, and
  - defining these clearly and testably requires training and maturity.
  - It is important to *believe* **that everything can be measured** and to seek guidance if it seems impossible.

Conclusions - 2

- A pre-requisite related to the method for using Evo is an *open architecture.*

- Another pre-requisite is *management support* for changing the work process, and this is important in any software process improvement initiative.

- The concept of **Continuous Integration (CI)/daily builds**
    - was valuable
    - with respect to delivering new versions of the software every week.

- Evo,
    - as most other software processes,
    - requires continuous focus
    - and learning about the methodology.

The way ahead

- Overall, the whole organization has embraced EVO.
- We all think it has great potential,
  - and we will work hard to utilize it to the full.
- In June 2004
  - we had Tom and Kai Gilb for a 4 days course for the whole R&D department and related resources

Confirmit 9.0

- The next version of Confirmit, Confirmit 9.0, will prove whether we have matured in our understanding and execution of EVO
- Confirmit 9.0 is due to be released Q4 2004, here is a sneak preview…

Confirmit 9.0
and product qualities

- Theme for 9.0:

  - Extend usage in large corporations,

    - hence focus on usability, intuitiveness, easy to learn

  - Market Research:

    - Support for large panels, up to 200 000 panellists.

    - Improve productivity in general for those who work with such large panels

  - Improve throughput

    - for users that receive reports with more than 1 000 000 responses

      - (important for large corporations; HP, Microsoft, Accenture etc)

Confirmit v9 during development

Description of requirement/work task	Past	Status 11.09	Goal
Usability.Intuitiveness: Probability that a defined User can intuitively figure out how to do a defined Task correctly (without any errors needing correction)	30%	45%	80%
Panel.Scalability: Maximum number of panelists that the system can support within a timeframe of 120 seconds for creating a sample of 50 000, with all components of the panel system performing acceptably.	30000	500000	200000
Performance.DataVolume: Numbers of survey responses that can be handled by Reportal. Tables should be generated within 5 seconds.	20000	500000	500000

Initial Customer Feedback on the new Confirmit 9.0

November 24th, 2004

Initial perceived value of the new release

To what extent do you feel Confirmit 9.0 will give you additional value?

Base: 73
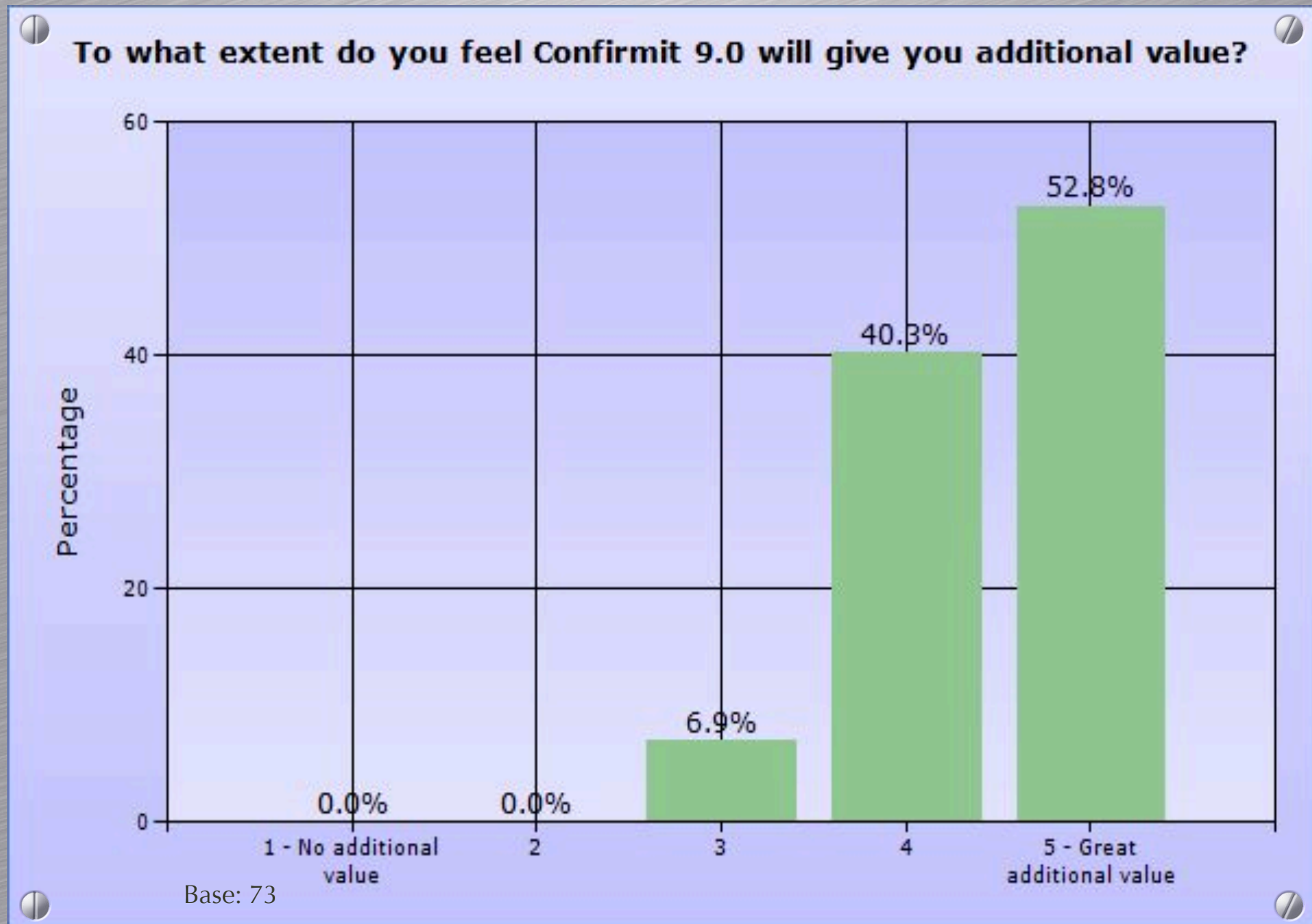
Initial qualitative feedback on the new release

" ... keep up the good work."

"It looks like you have listened to the people that actually use the software daily and aimed to make it easier for them ... "

"I was very impressed with the version 9.0"

9.0 Customer Preview Observations

- Seminar observations

  - On several occasions, customers gave **spontaneous "WOWs" and applauses!**

  - The training room in London was literally packed with people eager to test the new version.

  - Several clients asked if they could access the test server from home as well.

  - Great participation rate; 95% of all registered people showed up.

firm ▶▶ company information

confirmit✓ ®

confirmit	demos	services	partners	customers	news

▶ **Press releases**　　▶ Events　　▶ Contact me
▶ In the media　　▶ Press area　　▶ Fact sheets

OSLO · LONDON · NEW YORK · SAN FRANCISCO · STOCKHOLM

News release

2004-11-29: Press Release from FIRM

New version of Confirmit increases

user productivity up to 80 percent

NOVEMBER 29th, 2004: FIRM, the world's leading provider of online survey & reporting software, today announced the release of a new version of Confirmit delivering substantial value to customers including increased user productivity of up to 80 percent.

FIRM is using Evolutionary (EVO) development to ensure the highest focus on customer value through early and continuous feedback from stakeholders. A key component of EVO is measuring the effect new and improved product qualities have on customer value. Increased customer value in Confirmit 9.0 includes:

shortcuts

▶ Press releases
▶ In the media
▶ Events
▶ Press area

- Up to 175 percent more intuitive user interface*
- Up to 80 percent increased user productivity in questionnaire design and testing* ← *Product Qualities*
- Up to 1500 percent increased performance in Reportal and Panel Management*

Features delivering increased customer value include:

- A completely new and state-of-the-art user interface
- Random Data Generator enabling automated testing of questionnaires ← *Solutions*
- Real-time Script Checker for on-the-fly script validation
- Block Randomization of questions to avoid respondent bias
- Reportal BitStream for fast online tabulation on high volume of responses

- We are very pleased to see major improvements in Confirmit 9.0, including updates to both the user interface and survey engine. We plan to deploy this new version when it becomes available to server customers, stated Alex Grinberg, Greenfield Online's Chief Information Officer. - We believe the improvements in Confirmit 9.0 will benefit Greenfield Online's survey programming, data collection and data delivery capabilities, helping us to bring even more value to our clients.

FIRM's VP of Marketing, Kjell Øksendal, comments;
- FIRM, through evolutionary development, is able to substantially increase customer value by focusing on key product qualities important for clients and by continuously asking for their feedback throughout the development period. Confirmit is used by the leading market research agencies worldwide and Global 1000 companies, and together, we have defined the future of online surveying and reporting, represented with the Confirmit 9.0.

Confirmit 9.0 was released onto FIRM's ASP environments in London and New York on November 27th. The new version will be available for server customers in January 2005.

* Measured in FIRM's TestLab by monitoring internal and external

Trond.Johansen@firmglobal.com

Thanks!

www.Gilb.com