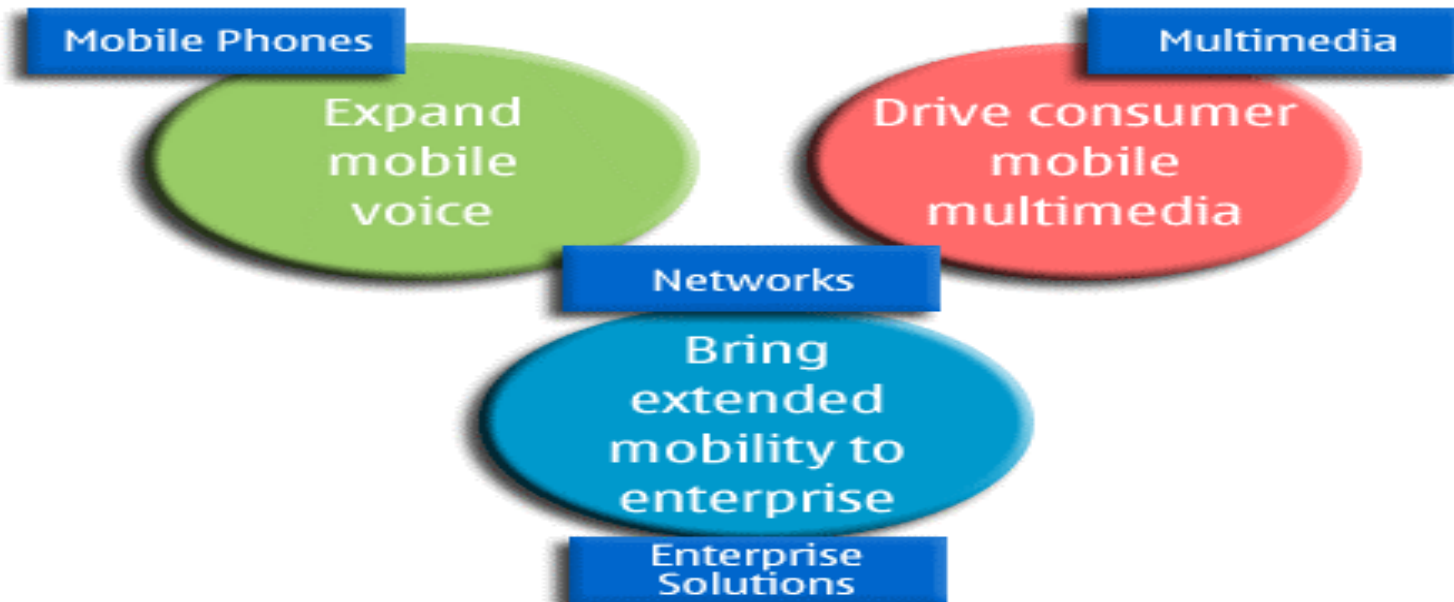


E-based document management in Nokia Networks Project Management

Wilhelm Scheidel, PMP
Sari Nevalainen

November 2004

Nokia Networks ??? OK, in a nutshell !



- Net sales EUR 5.6 billion, personnel 15 300 in 2003.
- Leading provider of mobile and IP network infrastructure to mobile operators and service providers.
- Leader in TETRA networks for public safety and security.
- World-class services for network deliveries, integration and support; end-to-end solutions for optimised network performance.

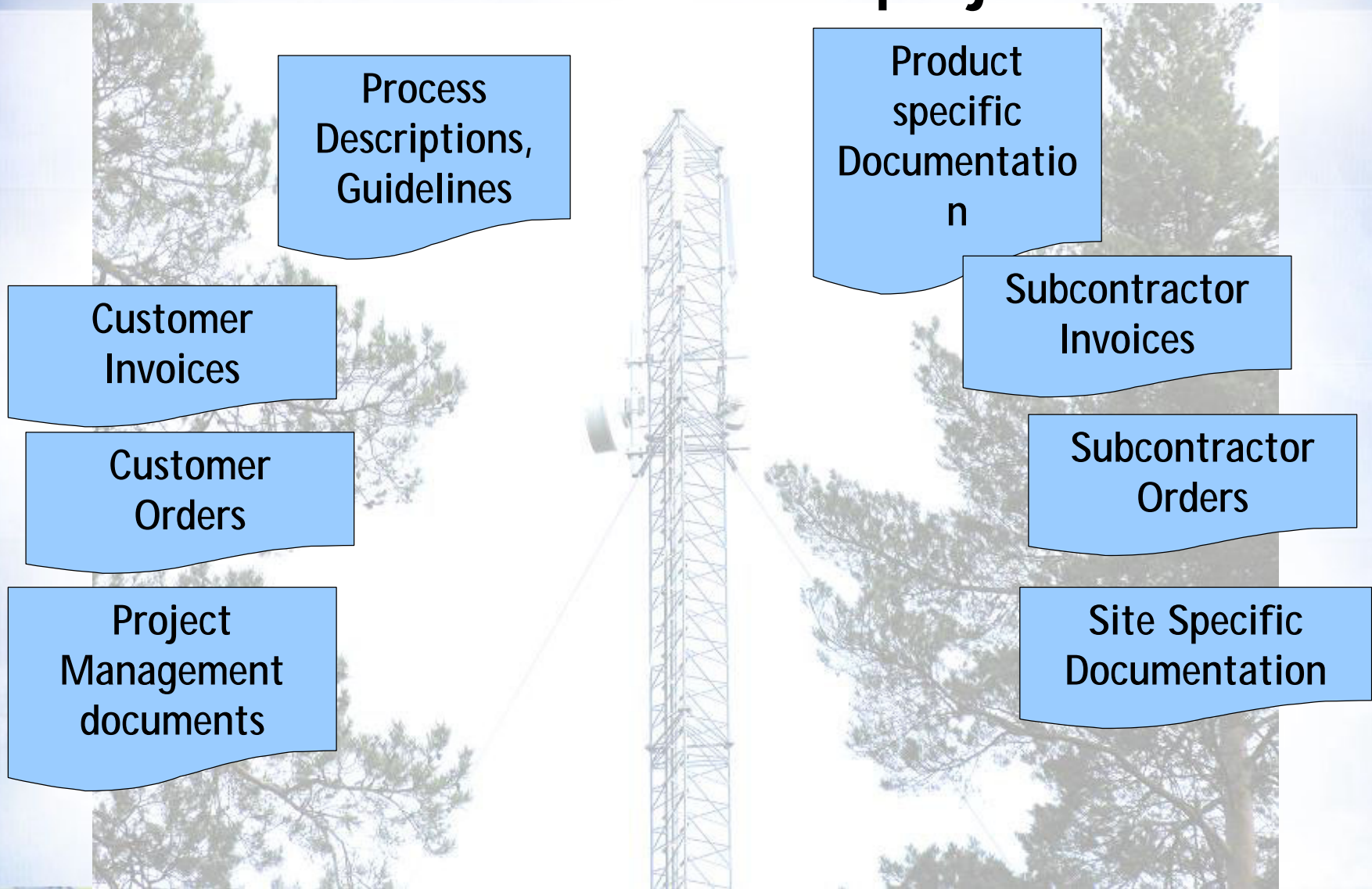
PM way of thinking



Infrastructure -> Multiple Sites



Documentation in a project



Once upon a time... somewhere in Austria

- 2000 we decided to close the Project office Vienna, Innsbruck and Graz.
- 2800 Folders for “implementation-only” sites and 320 Site from Turn Key project to be achieved ... But **HOW???**
- Rent a storage room? or Invest in Electronic documentation archive?

AND

- Price pressure on Implementation services has made us thinking, to pay our invoices faster, to get better prices from Partner companies-> invoice approval process to be improved.

EQUALS

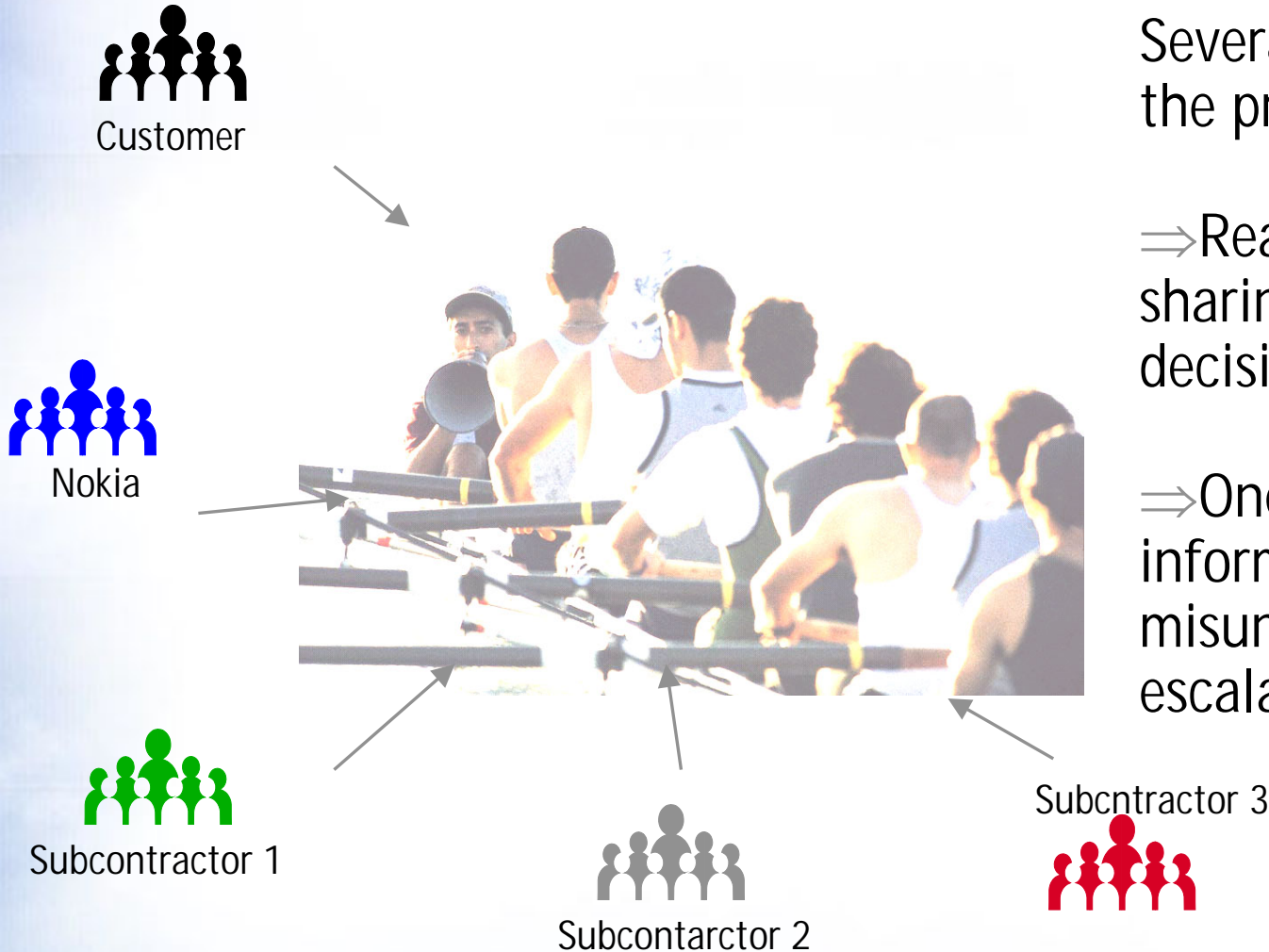
- E-based documentation & invoice approval tool was needed.
 - We where looking for a faster process (25-35 days to 5-7 days).
 - Online Site documentation approval process enables fast invoice approval.

Cost of Site Folder in paper



Estimated cost in Austria		1000 folders
Paper copy of Site Folder	150 pages 7€ each folder	7.000 €
Storage room	20 € / m ² / month 20 m ² per year	4800 €
Time spent on copying, archiving, delivering of each site folder	1 h per folder 50 €/h	50.000 €
Cost of 1000 site folders stored in paper format:		61.800 €

Project environment in Nokia Networks 1/3

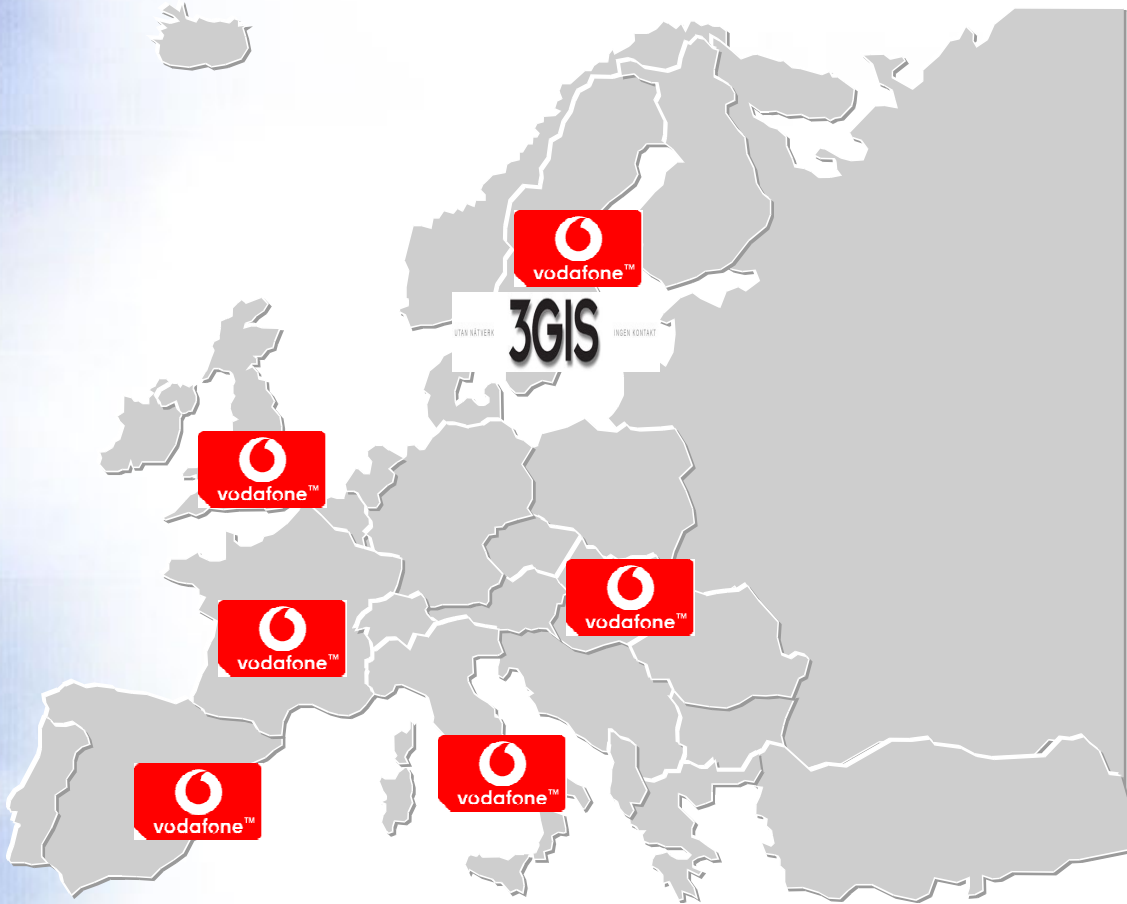


Several parties working in the project.

⇒ Real time Information sharing is key for fast decisions and less faults.

⇒ One source of reliable information prevents misunderstanding and escalations

Project environment in Nokia Networks 2/3



The customer company has separate projects in several countries.

⇒ Customer and Nokia need to follow up the progress on all of the cases.

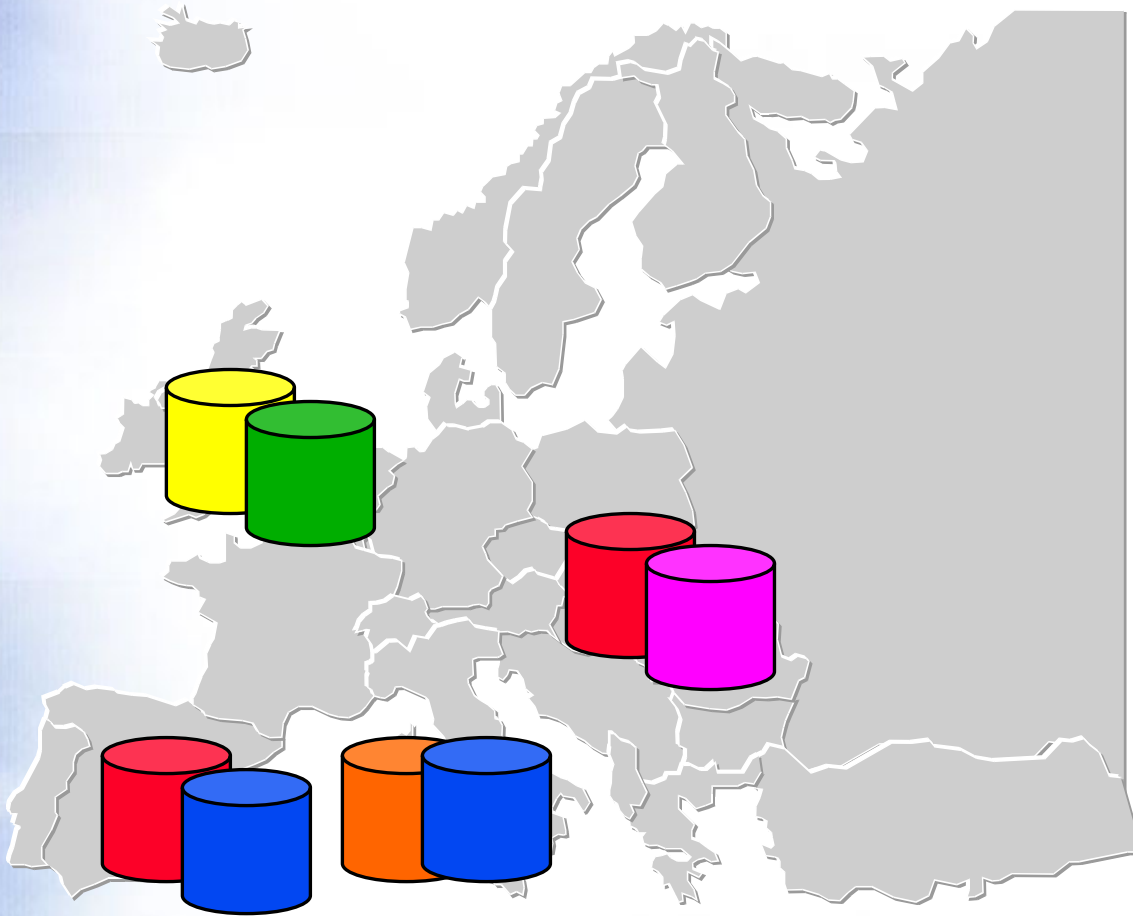
Project environment in Nokia Networks 3/3



Project team members, specialists and management are geographically spread around the globe.

⇒ Time zones and physical distance give challenges to information distribution.

Tracking project information in the past



Each project had their own databases and local configurations.
Own Documentation Manager with dedicated resources.

Problems:

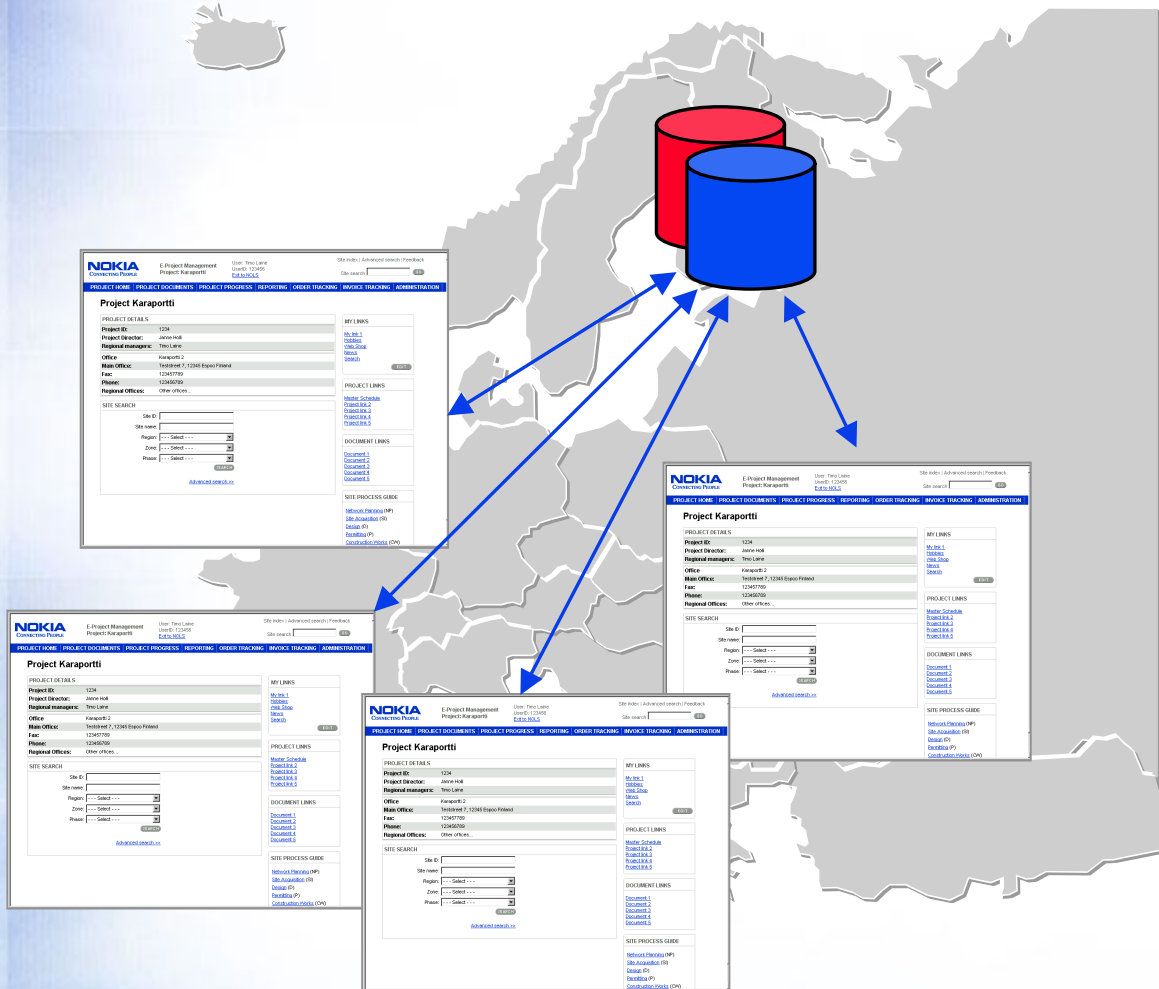
- ⇒ Maintenance costs
- ⇒ Development costs
- ⇒ No global visibility
- ⇒ Competence transfer
- ⇒ No sharing of best practises

Tracking project information currently

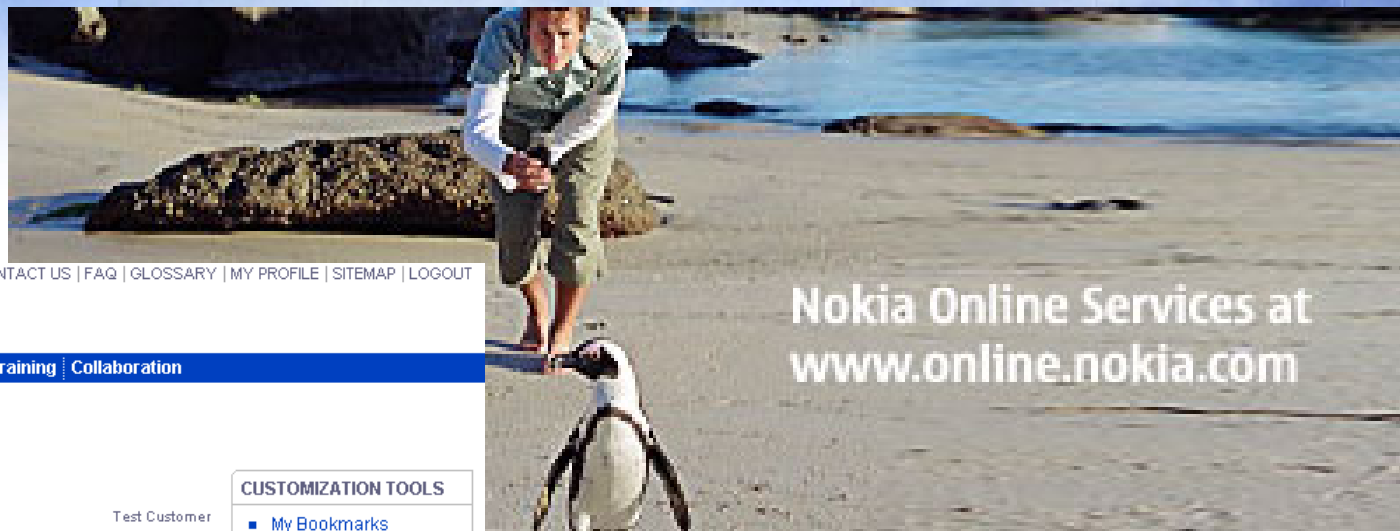
All projects are using the same databases.

Benefits:

- ⇒ Low maintenance costs
- ⇒ Centralised development
- ⇒ Global visibility
- ⇒ Harmonised user interface
- ⇒ Easy competence transfer
- ⇒ Easy sharing of best practises



Idea



CONTACT US | FAQ | GLOSSARY | MY PROFILE | SITEMAP | LOGOUT

NOKIA
CONNECTING PEOPLE
Nokia Online Services

Main Page | Products | Ordering | Deployment | Maintenance | Support | Training | Collaboration

Nokia Online Services

Welcome Test Customer

NOLS Feedback
Please give us your feedback about the NOLS site >>

My Quick Links
Speed your service navigation with My Quick Links. [Read how>>](#)

CUSTOMIZATION TOOLS

- [My Bookmarks](#)
- [Latest Content in NOLS](#)
- [My E-mail Notifications](#)
- [Change Password](#)

MY QUICK LINKS

- [E-PM projects](#)
- [Deployment Project Home](#)

[EDIT](#)

SERVICE INFORMATION

- [Alert Board](#)
- [Feedback](#)

Nokia Online Services at
www.online.nokia.com

Nokia Online Services (NOLS) is Nokia Networks' extranet channel which provides easy and secure access to solution and product documentation, downloadable software, project management tools, online entry and tracking of Help Desk cases, online ordering, e-learning and collaboration tools for Nokia Networks Customers, Partners and other Associates.*

* Access to NOLS Services is dependant on your agreement with Nokia.

Documentation Center for product documents



Earlier product documentation was delivered in paper format: average 30 000 sheets per library!

Benefits:

- Short lead times
- Low management and distribution costs
- Latest versions available
- Wide access
- Platform independent access
- Single access to all product information
- Personal e-mail on new or updated documentation
- Interactivity

Documentation Center for product documents

NOKIA
CONNECTING PEOPLE

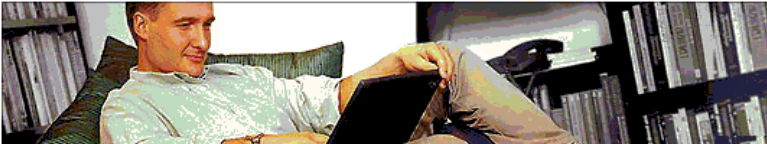
Nokia Online Services

Main Page | Products | Ordering | Deployment | Maintenance | **Support** | Training | Collaboration

Technical Notes | Generic Failure Reports | Change Deliveries | Documentation Center

Bookmark this page

Documentation Center



Documentation Center is your online access to Nokia documentation. It also provides alarm and counter information and important news on documentation-related issues. What is more, you can give us your opinion on our documentation through the "Feedback Channel" and by voting on hot topics on this page.

Participate in our survey!
What do you think of the Documentation Center?
What is your opinion on Nokia documentation?
You can give us your feedback on these topics by following this [link to the Feedback Channel](#). >>

Latest Documentation
Access to the most recently published [documentation sets from the past four weeks](#). >>

Product Information
Search, view or download all [Nokia documentation sets \(NED/PDF\)](#). >>

Reference Information
Direct access to [alarm, counter and parameter information](#). >>

Services

- [Latest Documentation](#)
- [Product Information](#)
- [Reference Information](#)
- [Glossary](#)
- [Feedback Channel](#)
- [Documentation News](#)
- [Download NED Software](#)

Tools

- [Subscribe to Notifications](#)
- [Update/Unsubscribe from Notifications](#)
- [Alert Board](#)
- [Help](#)

Voting

Have you tried our new service: downloading NED content via NOLS?

Yes, I downloaded NED software via NOLS

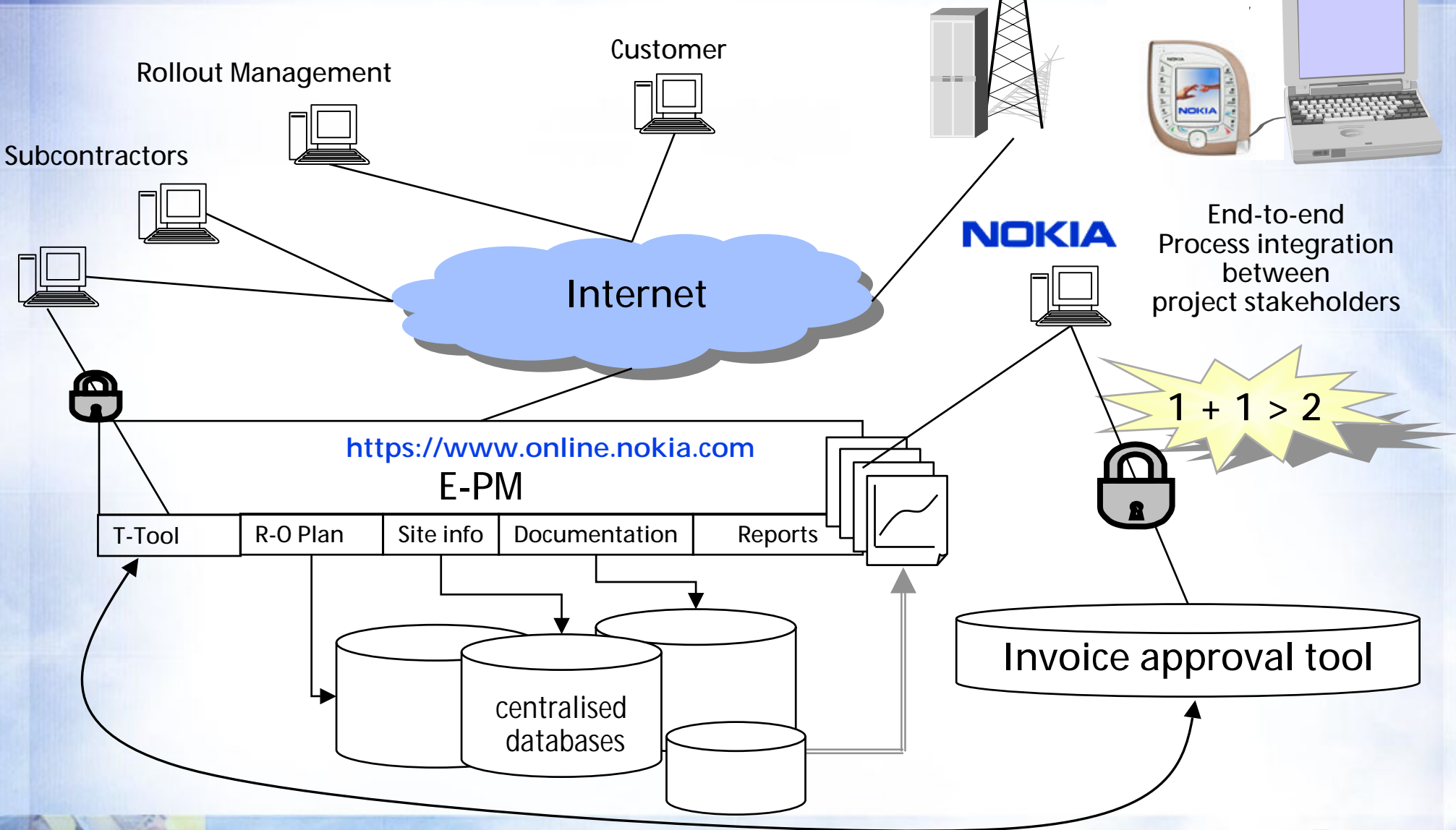
Yes, I downloaded NED libraries via NOLS

Pre-release documentation
Release documentation
Product documentation
Change documentation
Project specific documentation

Features:

- Online browsing (XHTML)
- Quality print-outs (PDF)
- Document downloading
- Advanced search methods
- Platform independent access
- Direct access to alarm and counter information
- E-mail notifications
- News on documentation issues
- Web surveys
- Feedback channel

Structure



Welcome to Nokia E-Project Management



E-PM is a collaboration platform which provides consolidated access to Nokia's Project Management IT systems over the Internet. The access to the system can be shared between Nokia, customer and third parties (Partners). The visibility within the channel is based on each user's profile

E-Project Management Overview

NOKIA
CONNECTING PEOPLE

Nokia Online Services

CONTACT US | FAQ | GLOSSARY | MY PROFILE | SITEMAP | LOGOUT

Main Page | Products | **Ordering** | **Deployment** | Maintenance | Support | Training | Collaboration

Nokia Online Services

Welcome Test Customer

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Speed your service navigation with My Quick Links. [Read how>>](#)

CUSTOMIZATION TOOLS

- My Bookmarks
- Latest Content in NOLS
- My E-mail Notifications
- Change Password

MY QUICK LINKS

- E-PM projects
- Deployment Project Home

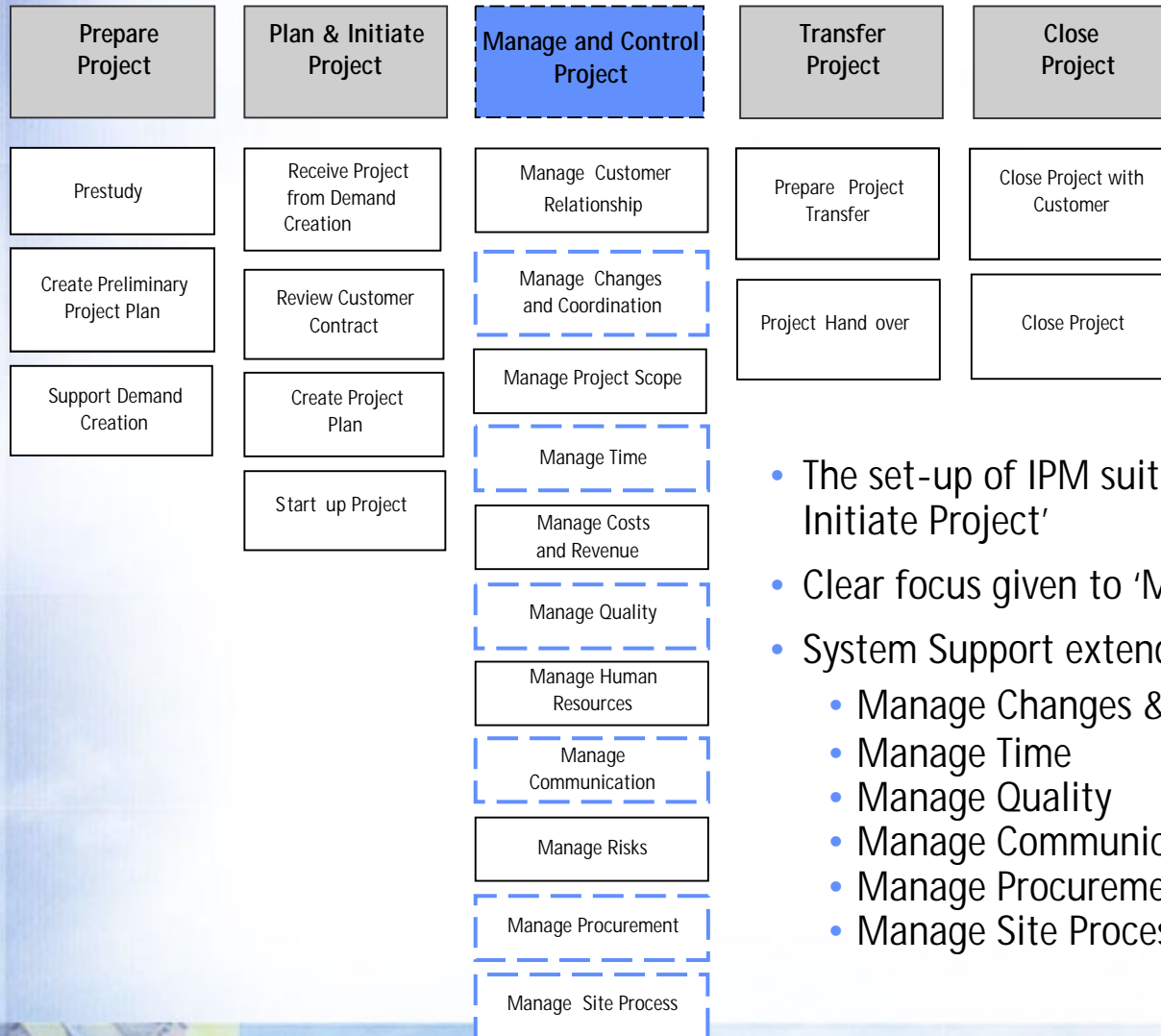
EDIT

SERVICE INFORMATION

- Alert Board
- Feedback

- Site Process management
 - General site info
- Change management
 - Site Log
 - Additional Cost Management
- Time management
 - Roll-out planning
 - Milestone based progress tracking
- Communication management
 - Project management and Site specific documentation
- Quality management
 - Site quality
- Procurement management
 - Order Triggering / Invoice approval
- Online reporting

PM Process Modules vs. IPM Suite Scope



- The set-up of IPM suite related concepts takes place during 'Plan & Initiate Project'
- Clear focus given to 'Manage & Control Project' process
- System Support extended over eight 'Knowledge Areas':
 - Manage Changes & Coordination
 - Manage Time
 - Manage Quality
 - Manage Communication
 - Manage Procurement
 - Manage Site Process

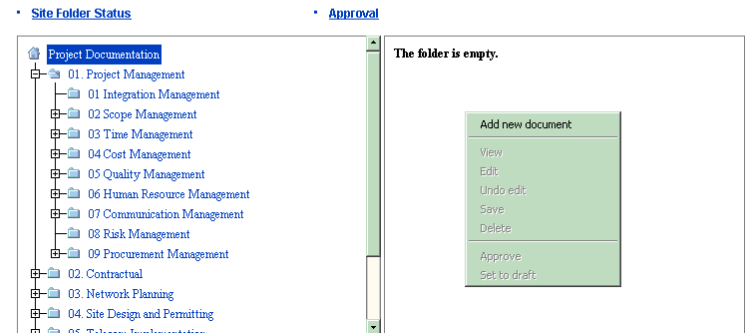
Document Management

- Document management in E-PM is divided into two areas:
 - Project documentation
 - Site documentation
- The features include:
 - Upload one or more documents
 - View and download
 - Version management
 - Review and Approval
 - Access right management
 - Upload documents with e-mail



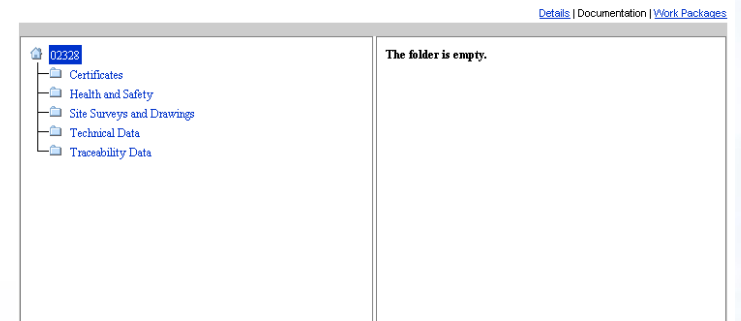
Project Documentation

The folders are displayed on the left panel, you can navigate through them using your mouse. To view documents in a folder, click on a folder name. The contents of the folder will appear on the right panel. To view the document details click on the file name. The document details page allows you to edit, view and save the document. To add a new document, "right click" on the right panel when the preferred folder contents are displayed and choose "Add document".



Site Aldgate East - 02328 - Documentation

The folders are displayed on the left panel, you can navigate through them using your mouse. To view documents in a folder, click on a folder name. The contents of the folder will appear on the right panel. To view the document details click on the file name. The document details page allows you to edit, view and save the document. To add a new document, "right click" on the right panel when the preferred folder contents are displayed and choose "Add document".



Time Management – Progress Tracking

- The progress of the work on site is tracked based on the Nokia Site Process milestones.
- The progress tracking is based on tracking the progress of the pre-defined sales/delivery packages.
- The packages are in line with the delivery commitment defined in the delivery contract.

[Main Page](#) | [Deployment](#) | [Maintenance](#) | [Support](#) | [Collaboration](#)
[Project Home](#) | [Documentation](#) | [Reporting](#)


Work Packages

Click on work package name to see the details.
[Call-off work package](#)

Existing work packages

Name	Description ID	Type	Created	Completed	Remove?
WLL WCO - Extra Works (Supplier only)	222395	Telecom Implementation	01-Apr-2004		<input type="radio"/>
6211141-NODE B New Installation & Commissioning	220892	Telecom Implementation	18-Mar-2004		<input type="radio"/>
6211142-NODE B Expansion & Reconfiguration	222397	Telecom Implementation	01-Apr-2004		<input type="radio"/>
WLL WCO - Sellable additional works (Customer only)	222396	Telecom Implementation	01-Apr-2004		<input type="radio"/>

[REMOVE](#)





Work Items

1

Item type: **Additional Works** Item subtype: **Normal**

Date created: 01-Apr-2004 Customer original planned: 06-Apr-2004

Completion forecast:  Completion actual: 

Completed by person: Completed by company:

Notes:

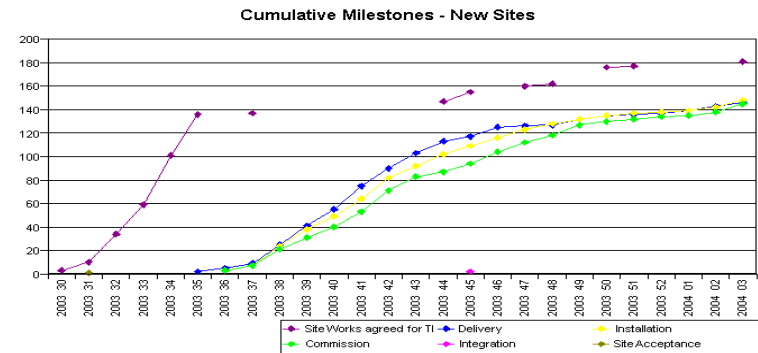
[+ MORE](#)

[REMOVE](#) [UPDATE](#)

Time Management – Rollout Planning

- High volume roll-outs need to be managed more like manufacturing production, not like traditional projects.
- Planning is based on understanding lead-times for each phase of the site process and managing roll-out capacity and bottlenecks.
- Data sharing with progress tracking.
- Centralised architecture.

Products: 2G - Macro			Scope: New							Customer Operations: Genesis, Naim	
			W/44.2003	W/45.2003	W/46.2003	W/47.2003	W/48.2003	W/49.2003	W/50.2003	W/51.2003	
Installation	Periodic	Base Line	--	--	0	29	22	22	22	22	
		Actual + Forecast	16	20	18	26	19	33	22	--	
		Variance	-16	-20	-18	3	3	-11	0	22	
Cumulative	Base Line	Base Line	--	--	0	29	51	73	95	117	
		Actual + Forecast	26	46	64	90	109	142	164	164	
		Variance	-26	-46	-64	-61	-58	-69	-69	-47	
Commissioning	Periodic	Base Line	--	--	0	29	22	22	22	22	
		Actual + Forecast	13	17	14	16	11	24	11	11	
		Variance	-13	-17	-14	13	11	-2	11	11	
Cumulative	Base Line	Base Line	--	--	0	29	51	73	95	117	
		Actual + Forecast	23	40	54	70	81	105	116	127	
		Variance	-23	-40	-54	-41	-30	-32	-21	-10	
Site Acceptance	Periodic	Base Line	--	--	--	--	--	29	22	22	
		Actual + Forecast	--	--	19	13	17	13	13	16	
		Variance	--	--	-19	-13	-17	16	9	6	
Cumulative	Base Line	Base Line	--	--	--	--	--	29	51	73	
		Actual + Forecast	--	--	19	32	49	62	75	91	
		Variance	--	--	-19	-32	-49	-33	-24	-18	
Integration	Periodic	Base Line	--	--	--	--	--	--	--	--	
		Actual + Forecast	--	--	--	--	--	--	--	--	
		Variance	--	--	--	--	--	--	--	--	
Cumulative	Base Line	Base Line	--	--	--	--	--	--	--	--	
		Actual + Forecast	--	--	--	--	--	--	--	--	
		Variance	--	--	--	--	--	--	--	--	



Online Project Management reporting

- IPM suite provides following standard visibility to covered services:
 - Site Process management
 - Rollout metrics
 - Time management
 - Cumulative milestone progress reporting
 - Project milestone leadtimes
 - Project delivery leadtimes
 - Rollout planning accuracy
 - Quality management
 - Subcontracted service quality
 - Site quality index

Quality Management – Site Quality

- Site Quality in E-PM is divided into two parts:
 - Site Deficiency Tracking
 - Site Quality Assessment

- Output of Site Quality in E-PM: The project and its stakeholders can obtain quality status towards individual site, project zone/region and subcontractor(s) service performance.

The screenshot displays the Nokia Quality Management web application interface. At the top, the Nokia logo and 'CONNECTING PEOPLE' tagline are visible, along with contact information and navigation links. The main navigation bar includes 'Main Page', 'Deployment', 'Maintenance', 'Support', and 'Collaboration'. Below this, a secondary bar shows 'Project Home', 'Documentation', and 'Reporting'. The page title is 'View Checklist'. On the left, there is a sidebar with project details: 'Project: I.Vodafone Omnitel TI' and 'Site: 10-V.LE S.GEMINIANO', with links for 'Contacts', 'Quality', 'Work Packages', and 'Documentation'. The main content area shows 'View Checklist' with a placeholder text 'Lorem ipsum dolor sit amet.'. Below this is the 'Checklist Details' section, which includes fields for 'Checklist ID' (1424), 'Checklist Name' (VFO Base Station Quality Checklist), 'Opened Date' (30-Mar-2004), 'Opened by Company' (ALETEL S.r.l.), and 'Opened by Person' (Busonera, Marco 001218). An 'UPDATE' button is located at the bottom right of this section. The 'Checklist Items' section follows, with expand/collapse links. It shows a tree view of the checklist structure, including 'VFO Base Station Quality Checklist', 'ENVIRONMENT CONDITIONING SYSTEMS', and 'HEAT EXCHANGER INSTALLATION & COMMISSIONING'. A table lists the items with columns for 'Item', 'Description', 'Sev.', and 'Resp.'. The table contains six rows of items, each with a 'RECORD' button. The items are: 1 Plinth air guide installation (Sev. 3, Resp. ALPITEL S.p.a.), 2 Heat Exchanger unit installation (Sev. 3), 3 Grounding installation (Sev. 2), 4 Power supply cables (Sev. 1), 5 Ventilators Condenser Heaters working properly (Sev. 2), and 6 Other (Sev. 2). Below the table, there are more expandable sections for 'AIR CONDITIONER & COWLING BOX INSTALLATION & COMMISSIONING', 'BASE STATION IMPLEMENTATION', 'POWER SYSTEM IMPLEMENTATION', 'ANTENNA SYSTEM IMPLEMENTATION', and 'GENERAL'. Expand/collapse links are provided at the bottom of the items section.

Process for a site document 1/2

Subcontractor performs work on site and prepares a document

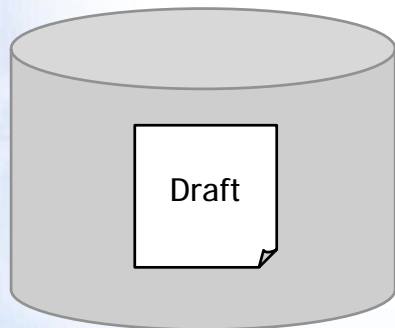


Nokia checks the document

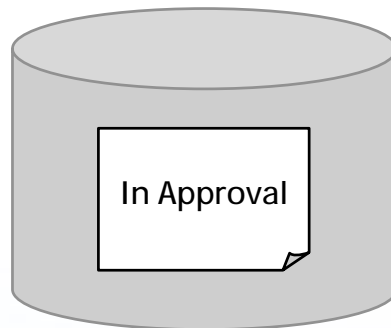


Customer approves the document

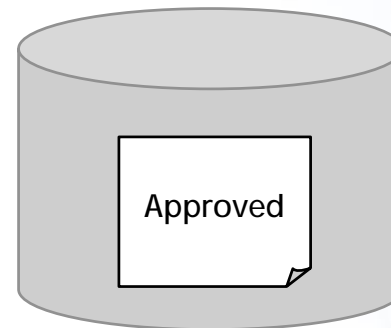
Add document



Review & add docs
Send for approval



Approve document



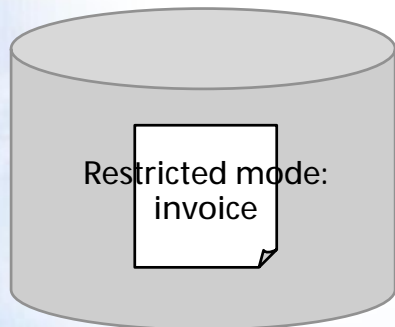
Process for a site document 2/2

Subcontractor issues invoice

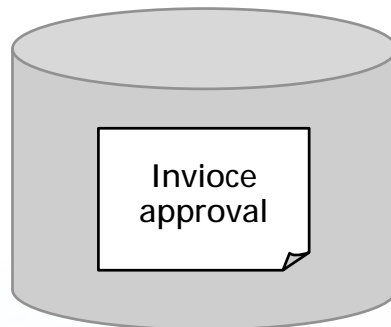
→ Nokia checks and approves invoice

→ Nokia sends invoice to Customer

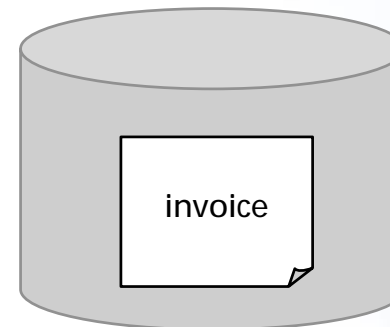
Add document



Approval and Payment trigger



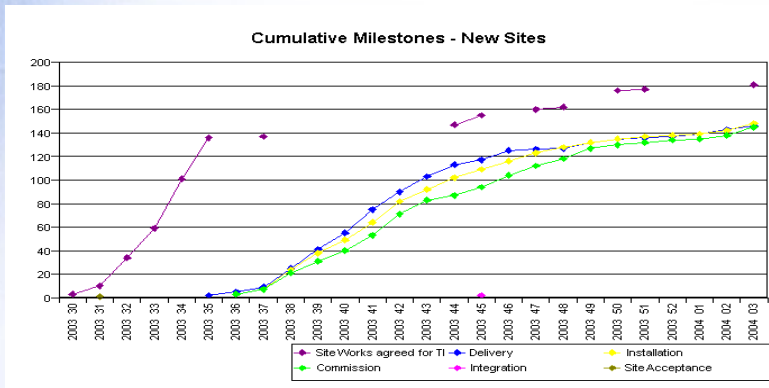
Add Document



Milestone Based Reporting

Sample reports:

- Cumulative progress (graphs):



- Cumulative progress (tabular):

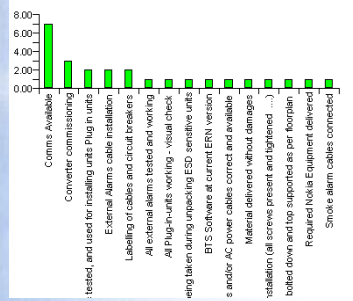
Completed Date Actual (Year Week)	Site Works agreed for TI	Delivery	Installation	Commission	Integration	Site Acceptance
2003 30		3				
2003 31		10				1
2003 32		34				
2003 33		59				
2003 34		101				
2003 35		136	2			
2003 36			5	3	3	
2003 37		137	9	7	7	
2003 38			25	24	21	

- Process Metrics reports (CLT/TILT)

Most Frequent Deficiencies

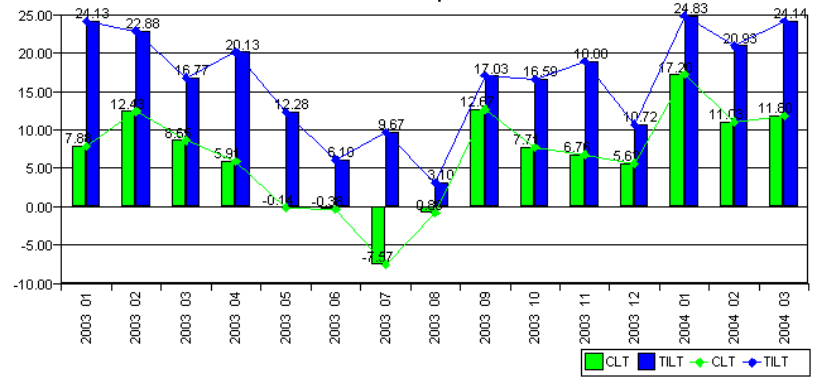
Report last refreshed: 26.2.2004 07:18:20 PM
Page: 0 of 1

UN_02_30
Year/Month of when Deficiencies Raised: 200402



Item Name	No of Defects
Comms Available	7
Converter commissioning	3
ESD Strap is tested, and used for installing units Plug in units	2
External Alarms cable installation	2
Labelling of cables and circuit breakers	2
All external alarms tested and working	1
All Plug-in-units working - visual check	1
Are ESD precautions being taken during unpacking ESD sensitive units	1
BTS Software at current ERN version	1
DC power cables and/or AC power cables correct and available	1
Material delivered without damages	1
Modules installation (all screws present and tightened ...)	1
Power cabinets, square, level, bolted down and top supported as per floorplan	1
Required Nokia Equipment delivered	1
Smoke alarm cables connected	1

CLT/TILT per month



Challenges ahead

- local requirements are hard to implement in a global system.
 - ⇒ Difficult to develop a tool that satisfies everybody. “one fits all?”
- Centralised databases affect the service performance.
 - ⇒ Distant countries suffer from slow connection.
- Not all customer accept electronic approval of documents.
 - ⇒ Signed paper documents must be scanned into the system.
- Back end systems are not sufficiently interlinked.
 - ⇒ Still some manual work needed when tracking the documents.

Learning's

- + Online Project Management with integrated Documentation Management has increased efficiency, flexibility and customer satisfaction.
- + Partner Companies see synergies by using same interface for all different Projects worldwide.
- ! Documentation Process has to be very well defined in the very beginning of the Project.
- ! Access speed is key for the stakeholder to buy in.
- ! No parallel Databases or Excel™ sheets “needed” -> Export functionality is important
- ! Top Management (Customer & Nokia) commitment for DMS is the first and most important step.
- ! “Start now with DMS and get the benefits in future” is a true statement!
- ? From a Problem to a competitive advantage within 3 Years;
Is this really fast enough ?

A photograph of two technicians wearing yellow hard hats and light-colored shirts, working on a server rack. The technician on the left is using a pair of pliers to work on a cable. The technician on the right is looking at a component in the rack. The background is a blurred server rack with various components and cables.

Thank you for your attention

Wilhelm Scheidel, PMP
&
Sari Nevalainen

A photograph of two technicians wearing yellow hard hats and light-colored shirts, working on a server rack. The technician on the left is using a pair of pliers to work on a component. The technician on the right is also working on a component. The server rack is filled with various modules and cables. The background is a light blue gradient.

Backup Slides