

estimate

estimate • analyze • plan • control

Estimating SAP Implementation

Ton Dekkers
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Galorath International Conference, Eindhoven (NL), 8 December 2011^{by} G A L O R A T H

Ton Dekkers - Roles

- Galorath International Ltd
Director of Consulting
Netherlands based
- Netherlands Software Metrics Association (NESMA)
President
- International Software Benchmarking Standards Group (ISBSG)
Past President
- Common Software Measurement Int. Consortium (COSMIC)
COSMIC Functional Size Measurement Method
International Advisory Committee
- Dutch Association of Cost Engineers (DACE)
WG Parametric Estimation

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Lukoil (Inform)



РУССКАЯ ВЕРСИЯ ▾

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- Corporate Governance ▾
- Press Centre ▾
- Investor and Shareholder Center ▾
- Reserves and Production ▾
- Oil Refining ▾
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- Product Deliveries and Marketing ▾
- Social Policy ▾
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LUKOIL & sport



LUKOIL lubricants
NEW FORMULA

GLOBAL BUSINESS OF LUKOIL



Presentation of US GAAP Consolidated Financial Statements for 9 months of 2011

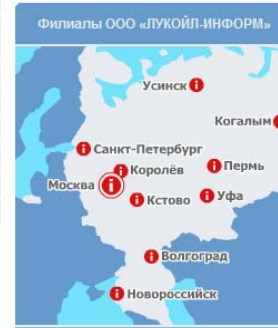
Today's LUKOIL

- 1.0% of global oil reserves and 2.2% of global oil production
- 17.8% of Russian oil production and 18.2% of Russian oil refining
- The 3rd largest non-state publicly traded oil company worldwide by proven reserves of hydrocarbons
- The 6th largest non-state publicly traded oil company worldwide by production of hydrocarbons
- The largest Russian oil business group with sales of over US\$100 billion and net income of over US\$9 billion
- The company with second largest trading volumes among foreign companies traded on the London Stock Exchange
- A leader among Russian oil companies for openness and transparency. The first Russian company to receive full list
- The only private Russian oil company whose share capital is dominated by minority stakeholders
- One of the largest tax payers of the Russian Federation. The total amount of taxes paid in 2010 is US\$30.2 billion

ЛУКОЙЛ-ИНФОРМ

ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ

- Об Обществе ▾
- Направления деятельности ▾
- Социальная политика ▾
- Наши партнеры ▾
- Пресс-центр ▾
- Тендеры ▾
- Карта сайта ▾
- Контакты ▾



«ЛУКОЙЛ-ИНФОРМ» является головной организацией по инфор сопровождение информационных систем в вертикально-интегрированной корпоративной информационной безопасности, развитию и обслуживанию информационно-технологического рынка услуг, сотрудничающий

Тендеры

- 29.11.2011 Приглашение для участия в тендере на «Оказание у
- 29.11.2011 Приглашение для участия в тендере на «Оказание у
- 29.11.2011 Приглашение для участия в тендере на «Оказание у

Новости Компании

- 30.11.2011 О «ГОРЯЧЕЙ ЛИНИИ» ЛУКОЙЛА [подробнее](#)

Improving communication between Business and IT

Mismatch expectation

Most common issues for miscommunication:

- Ambiguous requirements
- Incomplete requirements
- Requirements volatility
- Lack of scope management
- Lack of Change Control
- Unrealistic (time) constraints [**Estimates**]

Improvement Actions

	Business	IT-related	Galorath
Standardise Requirements	✓ Input	✓ Template	✓
Standardise Development Process			
Value / Cost Engineering			
Scope Management Procedure	Managing collaboration business & IT		✓ <i>NorthernScope</i>
Change Management (Board) procedure	✓ Process		✓
Development Scenarios			
Quality Control	✓ Requirements review		✓ <i>Inspection process (e.g. Fagan)</i>
Governance	✓ Control		✓ <i>CoBIT / ISACA</i>

Legenda: Activity Lukoil Inform, ✓ Galorath input

Benefits

- Standardise requirements
Improved communication, collaboration and understanding
- Scope Management
Improved communication and scope control
- Change Control Board
Reasoning based decisions and control
- Quality Control
Improved customer satisfaction, realistic expectations and maintainability
- Governance
Transparency and control

Activities

1. Set scope of the improvement plan
2. Determine - Analyse current situation
processes, procedures, metrics, data collection
3. Define wanted situation
4. Prioritise improvement steps
Value Engineering
5. Define Improvement Plan ←-----
6. Define Prerequisites (per improvement step)
Includes dependencies
7. Estimate time plan / resource plan
8. Define deliverables / products
Metrics based on Goal-Question-Metric
9. Estimate Budget -----

Execute Plan

Pilot

SAP HR ESTIMATES

Goals

As part of improved communication:

- Transparency
- Standard Model (for estimation)
- Benchmark performance
- Understanding cost of service
[Business: are we paying a reasonable price?]
[Lukoil Inform: are we charging a realistic price?]
- Standardised approach
- Gaining experience in:
 - Sizing
 - Parametrics

10 Step Estimating Process



Data Collection

provided by Lukoil Inform

- Requirement Documents
Требование документы
- Data(base) information
Tables added / modified
Focusing on user data tables (no system tables)
- Number of FTE
Level 1 / Level 2

provided by SRG – Appraisal (Вакансии компании)

- Artifact Analysis
Results of identified Artifacts [keywords] in
Requirements Documents
Excel Sheet(s)



(Functional) Sizing - NESMA

- NESMA

Definitions and counting guidelines for the application of function point analysis, NESMA Functional Size Measurement method conform ISO/IEC 24570, version 2.1.

4.2.1 The indicative function point count

Definition

An indicative function point count indicates the size of an application or a project based on either a conceptual data model or a normalized data model. Caution is advised when using this indication as deviations of up to 50% higher or lower are possible!

*The number of entity types of the internal logical file type
in the normalized data model * 25*
+
*the number of entity types of the external interface file type
in the normalized data model * 10*

- Assumption

The tables are equivalent to normalised file types

Sizing Results NESMA

- Provided data

Project	Number	Factor	Size (FP)
New	248	25	6,200
Enhanced	75	25	1,875
Total Impacted			8,075

- Input SEER SEM

Project Size	Least	Likely	Most
New	6,000	6,200	7,000
Enhanced	1,800	1,875	2,200
Total Impacted	7,800	8,075	9,000

The PERT values are used in Monte Carlo Simulation (probability determination)

Proxy Definition / Validation

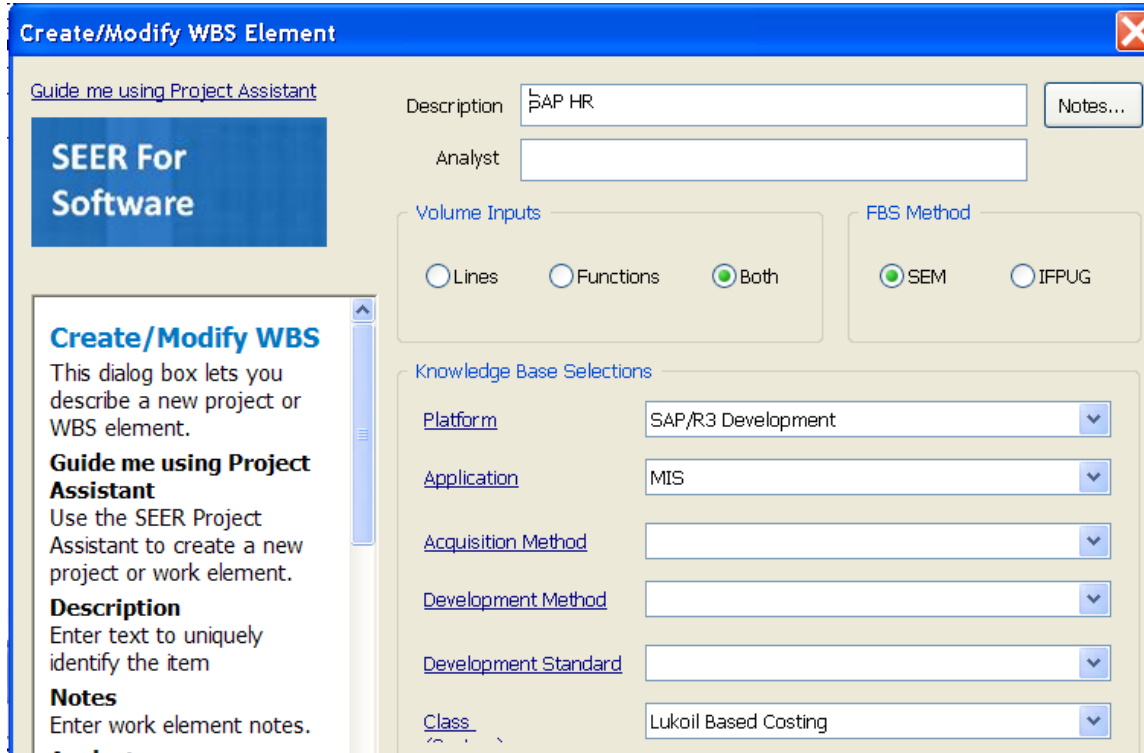
- Artifact Analysis
Applied quartile approach for defining Proxy

Project	Cat	New	Enhanced	Factor (FP)	Size (FP)
Very Small (<4)	L	115	119	4	936
Small (<8)	A	122	10	8	1,056
Average (<13)	H	117	4	16	1,936
Large (<23)	X1	58	1	32	1,888
Large Plus (<36)	X2	24	1	64	1,600
Very Large (<80)	X3	2	0	128	640
Extreme Large (80+)	X4	2	0	256	768
Total					8,824

Conclusion: NESMA values are usable in Estimate
NESMA is a “public” available approach

Selection Knowledge Bases

- Base Settings



Create/Modify WBS Element

Guide me using Project Assistant

SEER For Software

Create/Modify WBS
This dialog box lets you describe a new project or WBS element.
Guide me using Project Assistant
Use the SEER Project Assistant to create a new project or work element.
Description
Enter text to uniquely identify the item
Notes
Enter work element notes.

Description: SAP HR

Analyst:

Volume Inputs: Lines Functions Both

FBS Method: SEM IFFUG

Knowledge Base Selections:

Platform: SAP/R3 Development

Application: MIS

Acquisition Method:

Development Method:

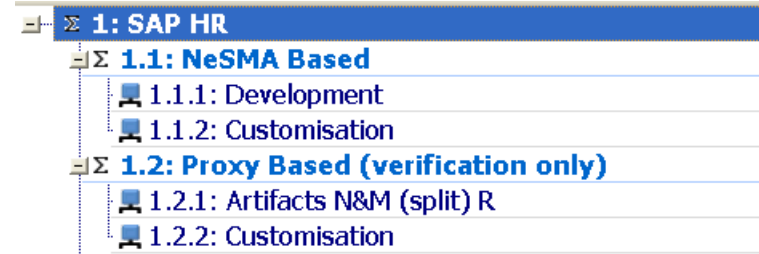
Development Standard:

Class: Lukoil Based Costing

- Implementation of
SAP SAP/R3 Development
HR Management Information System

Software Modelling

- Identified Development Customisation *applied for NeSMA / Artifacts*
- Set typical knowledge bases



Acquisition Method	Integrate with Configuration
Development Method	Off-the-Shelf Integration
Development Standard	IS Formal

Acquisition

Integration new features and configuration

Development Standard

SAP is no custom development
A formally defined process

Parameter adjustment

- “Language”
Development
Configuration

Function Implementation Mechanism	ABAP
Function Implementation Mechanism	Off-The-Shelf, No Source

- Others (example)

PRODUCT DEVELOPMENT REQUIREMENTS			
Requirements Volatility (Change)	Nom	Hi-	Hi
Specification Level - Reliability	Low	Nom-	Hi
Test Level	Low	Nom-	Hi
Quality Assurance Level	Nom	Nom	Hi
Rehost from Development to Target	Nom	Nom	Nom+
PRODUCT REUSABILITY REQUIREMENTS			
DEVELOPMENT ENVIRONMENT COMPLEXITY			
Language Type (complexity)	Low	Low	Low
Development System Complexity	Hi	Hi	Hi
Application Class Complexity	Low	Low	Low
Process Improvement	Nom	Nom	Nom
TARGET ENVIRONMENT			
Special Display Requirements	Nom	Hi	VHi
Memory Constraints	Nom	Nom	Nom
Time Constraints	Nom	Nom	Nom+
Real Time Code	Nom	Nom	Nom
Target System Complexity	Nom	Nom+	Hi
Target System Volatility	Nom	Nom	Nom
Security Requirements	Nom	Nom	Hi-

Bold Adjusted

Estimates Software Development

- Results Minimal Time

Project	Development Effort Hours		
	50%	80%	90%
NeSMA			
Development	146,758	242,652	312,803
Customisation	1,348	2,782	3,938

- Minimal Time vs Optimal Effort

Project	Development Effort Hours	
	Min Time	Opt Effort
NesMa		
Development	146,758	73,482
Customisation	1,348	954

- Actuals vs Minimal Time

Application Maintenance & Support



- Application related SEER SEM settings

Percent To Be Maintained	100.00%
Maintenance Size	Total Size
Steady State Maintenance Only	YES
Corrective	YES
Adaptive	NO
Perfective	NO
Enhancements	YES

- Period

Years of Maintenance	1.00
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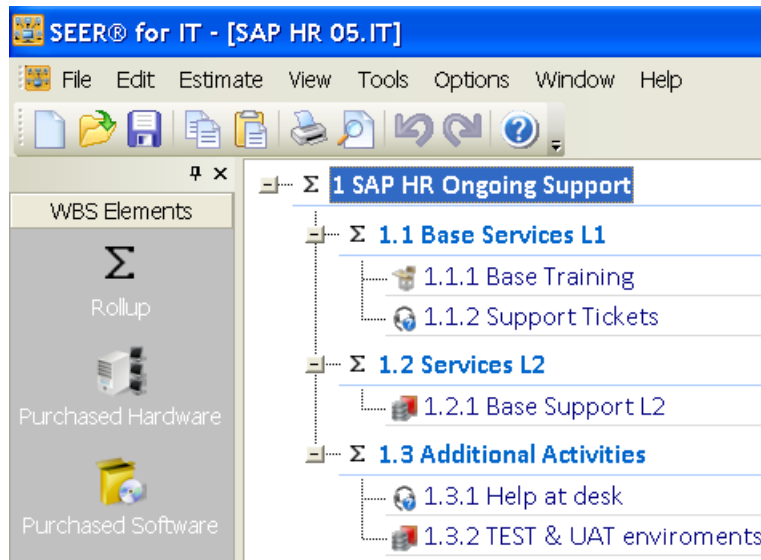
- Estimates

Project NeSMA	Size (FP Equivalents)	Maintenance Cost (USD)
ABAP	8,075	264,169
Configuration	12,112	12,240
Total	20,187	276,409

- Actuals

Ongoing Support (SEER IT) scope

- Following the same process
10 step estimation model
- Identify scope / artifacts



- Set Knowledge Bases (per WBS element)


Support Tickets L1

- Knowledge Bases

Description:

Analyst:

Element Types



This Item Is: Level 2

Task Type:

Category:

- Parameters

users

Application complexity

Use Intensity

...

tickets

spread in complexity of tickets

daily usage

1 SAP HR Ongoing Support

- Σ 1.1 Base Services L1
 - 1.1.1 Base Training
 - 1.1.2 Support Tickets
- Σ 1.2 Services L2
 - 1.2.1 Base Support L2
- Σ 1.3 Additional Activities
 - 1.3.1 Help at desk
 - 1.3.2 TEST & UAT environments

Service Desk: Support Tickets	Least	Likely	Most
USERS			
Number of Users	250	250	250
APPLICATION SUPPORT			
Applications	1	1	1
Application Complexity	Nom	Hi	VHi
Use Intensity	VHi	VHi	VHi
User Training Level	Nom	Nom	Hi
Service Level Agreement (Application Suppo...	Hi	Hi	Hi
END USER SYSTEM SUPPORT			
SERVICE DESK			
Coverage Hours	40.00	40.00	40.00
Staff Resources		Shared	
Staff Capability	Low	Nom	Hi


Base Support L2

- Knowledge Bases

Description:

Analyst:

Element Types



This Item Is: Level 2

Task Type:

Category:

- Parameters (middleware)
 - Software services
 - Size
 - Reliability

8 modules in HR
 > 20,000 FP (total application)
 criticality e.g. salary, pension

...

1 SAP HR Ongoing Support
1.1 Base Services L1
1.1.1 Base Training
1.1.2 Support Tickets
1.2 Services L2
1.2.1 Base Support L2
1.3 Additional Activities
1.3.1 Help at desk
1.3.2 TEST & UAT enviroments

Software/Database Services: Base Support L2	Least	Likely	Most
USERS			
APPLICATION			
DATABASE			
MIDDLEWARE/SERVICES			
Setup Type (Middleware)		New Installation	
Middleware	1	1	1
Software Services	8	8	8
Size	Hi+	VHi	VHi
Usage Load	Nom	Nom	Nom
Reliability (Middleware)	Nom+	Hi-	Hi

Help at Desk (Additional)

- Typical Item
To service an at desk ticket (Unit=Users)
a half hour is lost for "travel"

1 SAP HR Ongoing Support

Service Desk: Help at desk Least Likely Most

- 1.1 Base Services L1
 - 1.1.1 Base Training
 - 1.1.2 Support Tickets
- 1.2 Services L2
 - 1.2.1 Base Support L2
- 1.3 Additional Activities
 - 1.3.1 Help at desk
 - 1.3.2 TEST & UAT environments

	Least	Likely	Most
USERS			
APPLICATION SUPPORT			
END USER SYSTEM SUPPORT			
SERVICE DESK			
SCHEDULE			
ONGOING SUPPORT		Yes	
ECONOMIC FACTORS			
ADDITIONAL ITEMS			
Logistics			
Activity		Other	
Labor Category		Indirect Support	
Quantity	550.00	550.00	550.00
Quantity Unit of Measure		Users	
Hourly Labor Rate	0.00	0.00	0.00
Labor Hours	0.30	0.30	0.30
Labor Type		In-house	
Material Cost	0.00	0.00	0.00
Start Date		22/03/2011	
Duration (weeks)		52.00	

Ongoing Support

- Estimates

Ongoing Support	Cost (USD)	Cost (USD)	Cost (USD)
Base Training			136,013
Support Tickets			92,409
Level 1		228,422	
Base Support			228,398
Level 2		228,398	
Help at desk			52,351
Test & UAT			36,112
Additional Activities		88,463	
TOTAL	545,283		

- Actuals

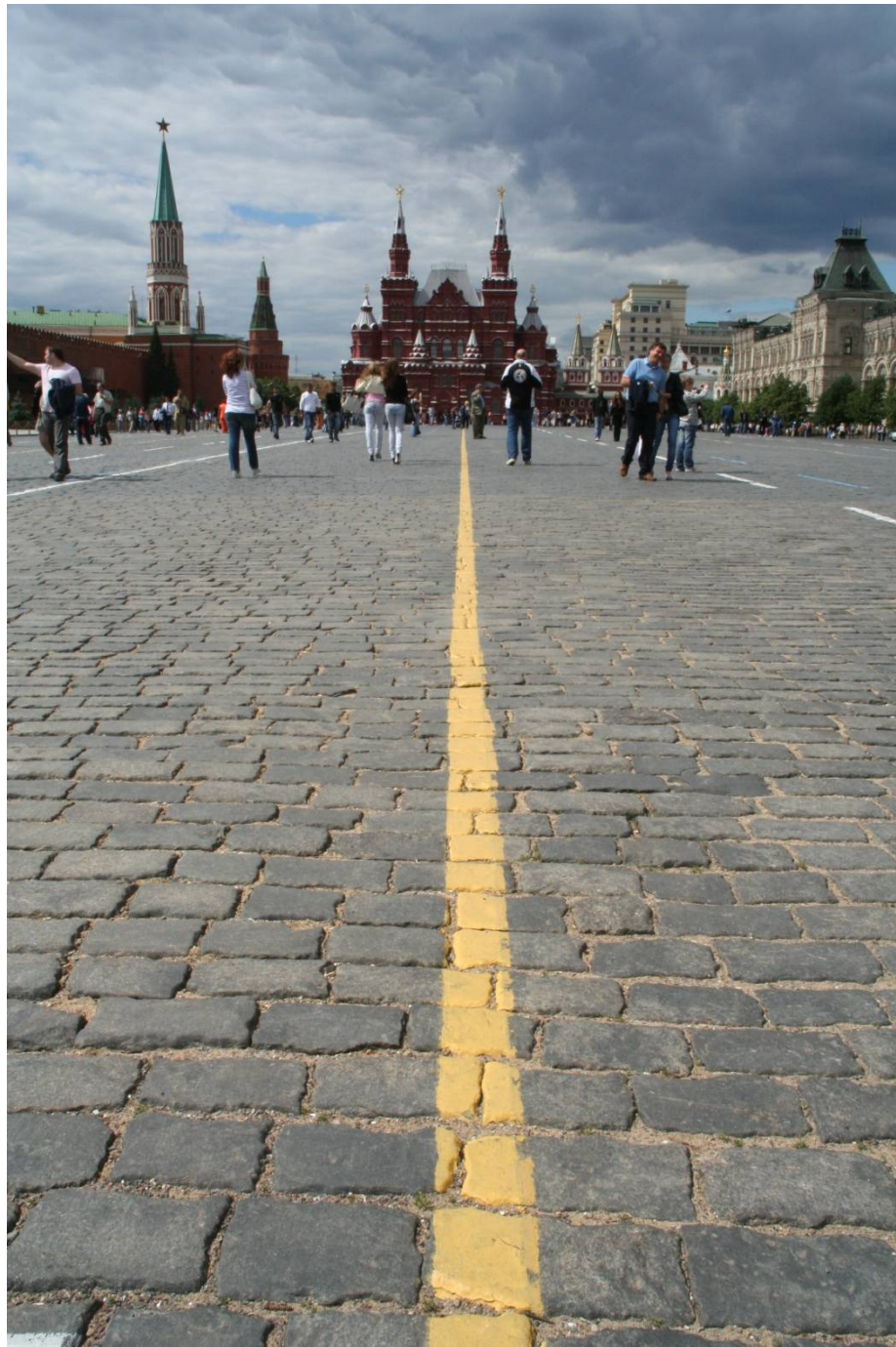
Conclusion

(**After adjusting / calibrating parameters**)

Parametric based estimates provide

- Structure for modeling components
- Consistent and transparent approach
- Objective and auditable
- Realistic expectations on
 - Cost
 - Effort
 - Capacity required

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 SEER[®]
by GALORATH

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