

Мобилен оператор

- бюджет на проекта

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Project Definition

В рамките на проекта ще бъде създадена надеждна системата за електронно обслужване, предоставяща оторизиран достъп до информация в електронен формат относно потреблението на клиентите през уеб портал, давайки възможност да се работи с всеки един клиент индивидуално, а не като с група.

Ще бъде осигурен достъп на клиентите до голям набор от персонални услуги за частни клиенти, специализирани бизнес услуги за фирми, юридически лица или еднолични търговци.

Спрямо нуждите на клиентите ще бъде осигурен център за поддръжка представен от служителите на Мобилиния оператор.



Constructive Cost Model Estimation

$$\text{Effort (person-months)} = A \times (\text{KSLOC})^B$$

Scale Drivers

Scale Factor	Description	Project Value
PREC	Precedentness	Low (3.25)
FLEX	Development flexibility	Nominal (2.00)
RESL	Architecture/ Risk resolution	Generally (2.42)
TEAM	Team cohesion	Very High (1.25)
PMAT	Process maturity	Very High (1.10)

$$B = 1.01 + 0.01 \times \sum w_i = 1.01 + 0.01 \times (3.25 + 2.00 + 2.42 + 1.25 + 1.10) = 1.11$$

Effort Adjustment Factors

	Cost Driver	Description	Project Value
1	DATA	Database size.	Very high - 1.17
2	CPLX	Product complexity.	High - 1.10
3	TIME	Execution time constraint.	Nominal - 1.00
4	STOR	Main storage constraint.	Nominal - 1.00
5	RUSE	Required reusability.	Nominal - 0.94
6	DOCU	Documentation match to life-cycle needs.	Nominal - 0.92
7	PVOL	Platform volatility.	High - 1.05
8	SCED	Scheduling factor.	Nominal - 0.95
9	RELY	Required reliability.	High - 1.10
10	TOOL	Use of software tools.	Low - 0.85
11	APEX	Application experience.	Nominal - 1.00
12	ACAP	Analyst capability.	High - 1.15
13	PCAP	Programmer capability.	Very high - 1.15
14	PLEX	Platform experience.	Nominal - 1.00
15	LTEX	Language and tools experience.	Nominal - 1.00
16	PCON	Personnel continuity.	High - 1.05
17	SITE	Multisite development.	Low - 0.90

$$A = A_{\text{base}} \times \text{EAF}$$

$$\text{EAF} = \prod_{\text{EAF } 1-17}$$

$$A_{\text{base}} = 3$$

$$\prod_{\text{EAF}} = 1.297$$

$$A = 3 \times 1.297 = 3.89$$

Function Points

- Unadjusted Functional Points (UFP)
 - External Input (EI)
 - External Output (EO)
 - External Inquiry (EQ)
 - Internal Logical File (ILF)
 - External Interface Files (EIF)
- Value Adjustment Factor (VAF)

$$\text{Function Points} = \text{UFP} \times \text{VAF}$$

Functional Points - Files

Process/File	Component Type	Language
Частни клиенти	Internal Logical File	SQL
Бизнес клиенти	Internal Logical File	SQL
Служители	Internal Logical File	SQL
Услуги	Internal Logical File	SQL
Съобщения	Internal Logical File	SQL
SMS Услуги	Internal Logical File	SQL
MMS Услуги	Internal Logical File	SQL
Тарифни планове	Internal Logical File	SQL
Сметки	Internal Logical File	SQL
Регистрация на плащане	Internal Logical File	SQL
Клиентски запитвания	Internal Logical File	SQL
Счетоводна система	External Interface File	SQL
Система за управление на фактури	External Interface File	SQL
Style of the page	External Interface File	CSS 3.0

Function Points - Pages

Process/File	Component Type	Language
Log in page	External Inquiry	HTML5 / JScript
Log out page	External Inquiry	HTML5 / JScript
Main page	External Inquiry	HTML5 / JScript
Registration page	External Inquiry	HTML5 / JScript
Payment method page	External Inquiry	HTML5 / JScript
Messages page	External Inquiry	HTML5 / JScript
Invoices page	External Inquiry	HTML5 / JScript
Invoice payment page	External Inquiry	HTML5 / JScript
Activation/Deactivation page	External Inquiry	HTML5 / JScript
Alt. tariff plan audit page	External Inquiry	HTML5 / JScript
Client questions page	External Inquiry	HTML5 / JScript
GPRS settings page	External Inquiry	HTML5 / JScript
SMS function page	External Inquiry	HTML5 / JScript
MMS function page	External Inquiry	HTML5 / JScript

Function Points

Process/File	Component Type	Language
MMS settings page	External Inquiry	HTML5 / JScript
Client profile page	External Inquiry	HTML5 / JScript
Client accessibility page	External Inquiry	HTML5 / JScript
Password verification page	External Inquiry	HTML5 / JScript
Notifications page	External Inquiry	HTML5 / JScript
Current tariff plan page	External Inquiry	HTML5 / JScript
Display current tariff plan	External Output	Java
Display other tariff plans	External Output	Java
Display invoices	External Output	Java
Calculate bill for different plan	External Inquiry	Java
Check current bill	External Inquiry	Java
Print bill	External Inquiry	Java
Pay invoice	External Inquiry	Java
Change tariff plan	External Inquiry	Java

Function Points

Process/File	Component Type	Language
Log in the system	External Output	Java
Log out	External Inquiry	Java
Send message	External Input	Java
Receive message	External Inquiry	Java
New client	External Inquiry	Java
Delete client	External Input	Java
Edit client details	External Input	Java
Verify new member	External Input	Java
Edit password	External Input	Java
Verify password	External Inquiry	Java
Display notifications	External Output	Java
Choose payment method	External Input	Java
Choose service	External Input	Java
Choose client type	External Input	Java

Function Points

Process/File	Component Type	Language
Confirm MMS content	External Inquiry	Java
Confirm SMS content	External Inquiry	Java
Confirm GPRS settings	External Inquiry	Java
Confirm tariff plan change	External Inquiry	Java
Send MMS	External Input	Java
Send SMS	External Input	Java
Request mobile device info	External Inquiry	Java
Examine invoice	External Input	Java
Enter personal number	External Input	Java
Perform transaction	External Inquiry	Java
Create invoice	External Output	Java
Send SMS settings	External Input	Java

Unadjusted Functional Points

- JAVA

EI	EO	EQ	ILF	EIF
21	6	15	0	0
13*4+	6*5+	15*4+	0+	0+

= 142

- SQL

EI	EO	EQ	ILF	EIF
0	0	0	11	3
0+	0+	0+	11*10+	3*7+

= 131

- HTML5/ Jscript/ CSS

EI	EO	EQ	ILF	EIF
0	0	20	0	0
0+	0+	20*4+	0+	0+

= 80

Value Adjustment Factor

Factor	Value
Data Communications	4
Distributed data processing	4
Performance	4
Heavily Used Configuration	3
Transaction Rate	4
Online data entry	3
End-user efficiency	4
Online update	5
Complex Processing	2
Reusability	3
Installation ease	1
Operational ease	4
Multiple Sites	1
Facilitate Change	4

$$VAF = 0.65 + 0.1 * \Sigma$$

$$VAF = 0.65 + 0.01 * 44$$

$$VAF = 1.09$$

Source Lines of Code (SLOC)

- JAVA

$$142 * 1.09 = 154.78 \text{ FP}$$

$$154.78 * 43 = \\ = 6655.54 \text{ SLOC}$$

- SQL

$$131 * 1.09 = 142.79 \text{ FP}$$

$$142.79 * \text{avg}(48,58) = \\ = 7567.87 \text{ SLOC}$$

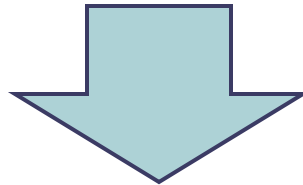
- HTML5/ Jscript/ CSS

$$80 * 1.09 = 87.2 \text{ FP}$$

$$87.2 * 37 = \\ = 3059.9 \text{ SLOC}$$

Total amount of SLOC: 17 283.31

$$\text{Effort (person-months)} = A \times (\text{KSLOC})^B$$



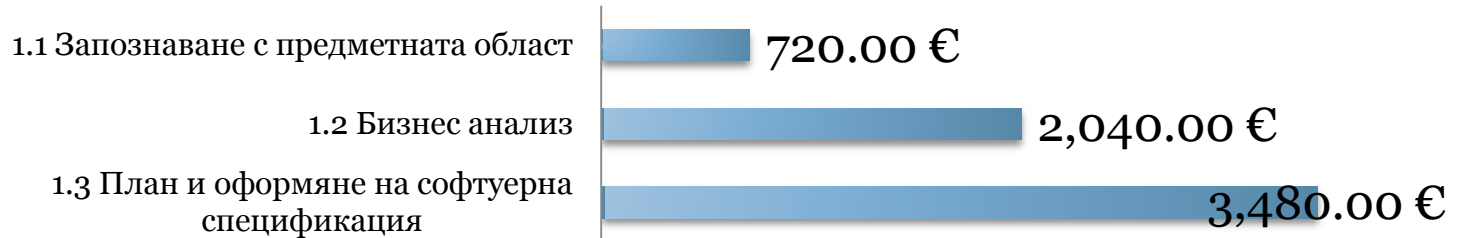
$$\begin{aligned} \text{Effort (person-months)} &= 3.89 \times (17.283)^{1.11} = \\ &= 91.98 \end{aligned}$$

$$\begin{aligned} \text{Development Cost} &= 91.98 \times 1500 \text{ €} = \\ &= 137\,974 \text{ €} \end{aligned}$$

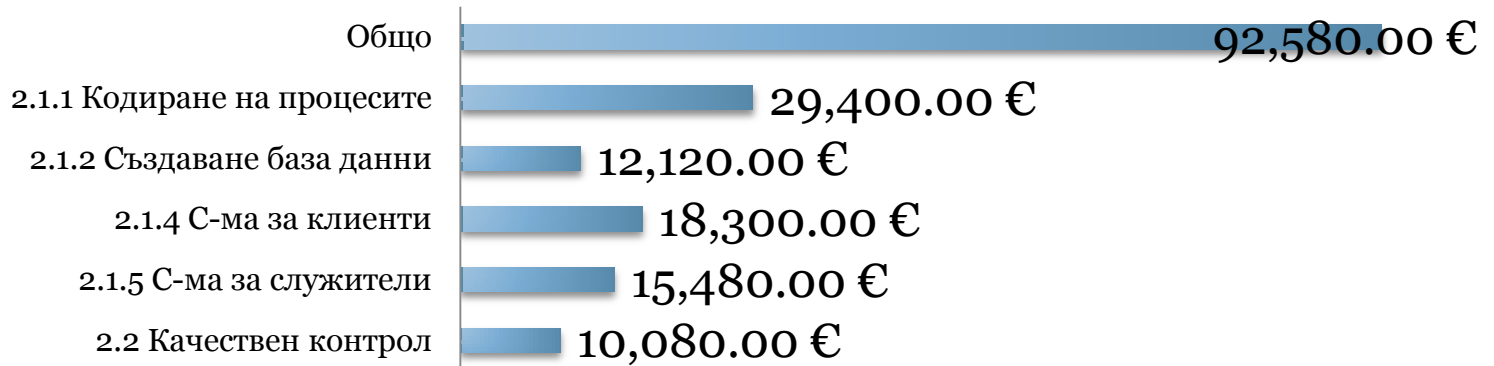


Bottom Up Estimation Approach

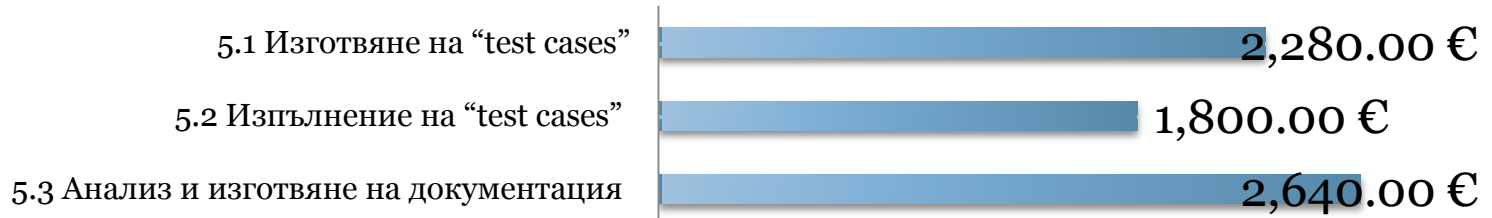
1. Проектиране на система



2. Софтуерна разработка

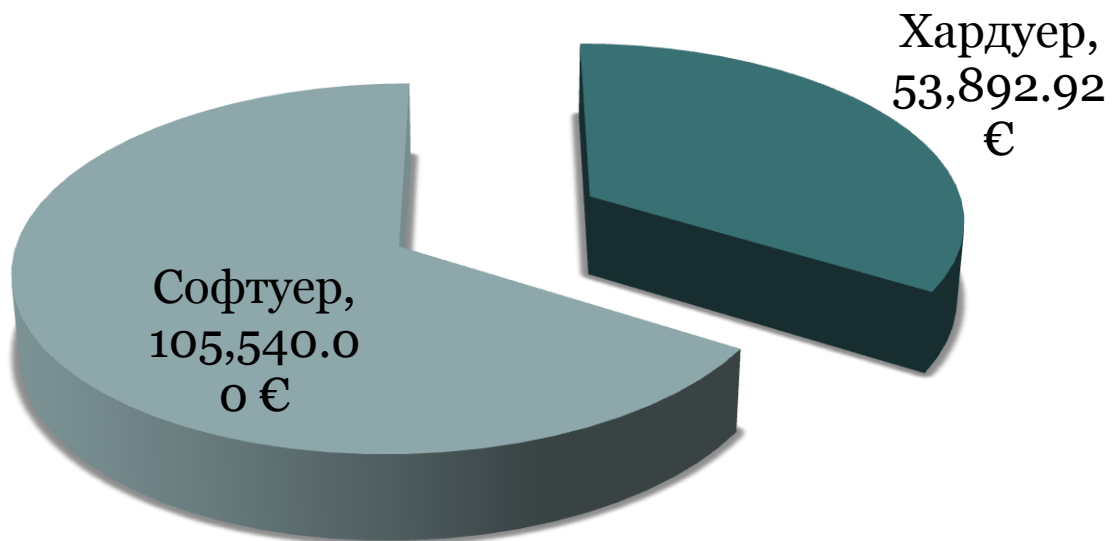


5. Тестване и интеграция



Bottom Up

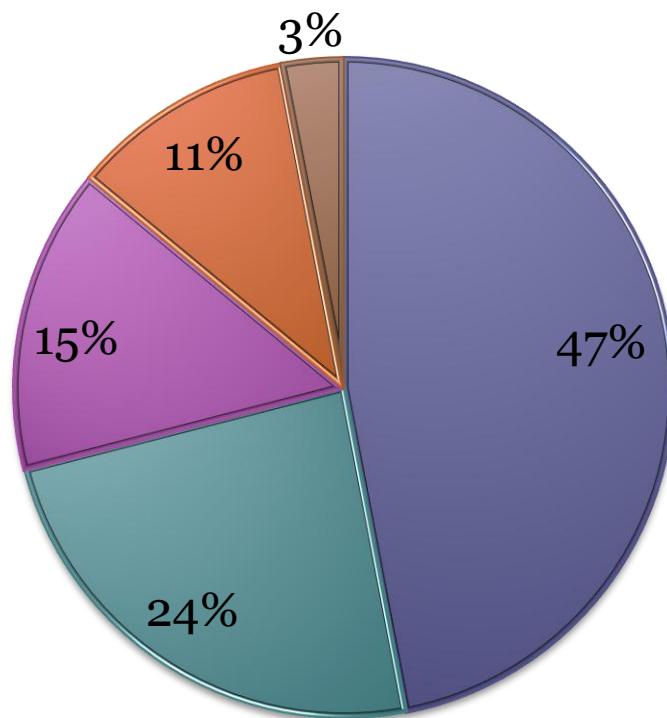
IT Comparison



Bottom Up

Общ Бюджет - 224 553 €

- Разработка
- Хардуер
- Маркетинг
- Офис и консумативи
- Непредвидени разходи



**Bottom Up
Development Cost
Estimate:**

105 540 €

**CoCoMo Development
Cost Estimate:**

137 974 €