SE Trends & Challenges in Albanian Companies

Employed students point of view

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Introduction

Dozens of companies that develop software in Albania

Do they implement SE aspects?

Solution: A survey concerning implementation of different aspects in companies from the point of view of employed students
Students learn about SE aspects of developing a software

BUT

How students implement their SE knowledge in their work environment?
Survey

20 questions
Related to:
Model to develop the software
Size of the software developed
The way they work (individually or in team)
Characteristics of different development phases
...

23 different companies
From 4 to 1500 employers
THE RESULTS ARE IN!
Type of software developed

- Web-based (not Web services) 29.2%
- Web Services / Service Oriented Architecture (SOA) 20.8%
- Database 20.8%
- Desktop 12.5%
- Native Android and iOS Application 8.3%
- 2-Tier client/server 4.2%
- N-Tier client/server 4.2%
Working in a team?

90% YES  10% NO
from 3 to 20 persons

- Team size not related to company size.
- Team size related to project size.

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**Project specifications**

![Graph showing the relationship between project size and duration](image)

- **Duration ( Months )**
  - Small: (<5000)
  - Medium: (5000-50,000)
  - Large: (50,000-250,000)
  - Very Large: (>250,000)

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Software process models used

- Waterfall model: 35.3%
- Incremental funding methodology: 5.9%
- Agile: 5.9%
- V Model: 35.3%
- Unknown: 11.8%
- None: 5.9%

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Basic phases in software developing

1. Analysis
2. Design
3. Implementation
4. Testing
Formal syntax

No formal semantics

Natural language

Ambiguous and imprecise

Informal 63%

Z, Petri nets, Statecharts

Formal semantics

Formal 0%

Formal syntax

UML class diagrams, sequence diagrams

Semiformal 37%

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Methods for SW development

- **Object Oriented Analysis & Design**: 40%
- **Structured Analysis & Design**: 36%
- **Agile methods**: 12%
- **No methodology**: 28%
70% ➔ developers themselves

12% ➔ a special testing team

18% ➔ both
Quality management approach

ISO 9001 30%
ISO 9126 x
Unknown 53%
None 17%
Role in the project

Number of persons

Roles

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**Estimation for different aspect of the software**

<table>
<thead>
<tr>
<th>Points</th>
<th>Cost within budget</th>
<th>Goals achieved earlier</th>
<th>Product easy to use</th>
<th>Duration within schedule</th>
<th>Adequate team size</th>
<th>Error severity not significant</th>
<th>Quality of the team</th>
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<td>4.2</td>
<td>3.9</td>
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</table>
Evaluation for company

Perform engineering requirements
- YES: 18
- NO: 6

Define sw life cycle
- YES: 17
- NO: 8

Manage sw quality
- YES: 20
- NO: 5

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Communication
Conclusions

- Most of companies in Albania don’t follow the suggested steps of SE while developing a Software.
- Most of the companies where the students work develop:
  - Web-based software
  - Medium-size software
- Most used models:
  - Waterfall
  - Incremental
- Requirements Specifications:
  - Informal & Semiformal
- Analysis and design technique:
  - Object-Oriented
- Testing:
  - No special team – Developers
Proposed Ideas

• Project leaders should insist more on a full documentation of the project from the beginning

• Companies should:
  – Have a quality approach
  – Have more practical process model

• Testing teams should:
  – Be trained
  – Have adequate size
Thank you!