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AN APPROACH TO MONITOR AND CHANGE THE TECHNOLOGY PORTFOLIO OF *ELV* RECYCLING

Abstract: *A technological portfolio of **ELV** recycling has changed structures and values of atributes. Because that is receded to monitor portfolio progress and realised changes using project evaluation and rewvew techniques and tools.*

*In the paper is analized project management technoloque with conbination of quality improvement technoloques, as **FMEA**, **DFD** and statistical tools.*

Keywords: *End-of Life Vehicles, Multi-Criteria Classification, Fuzzy Sets*

1. INTRODUCTION

Each technology portfolio is result of technology evolution and evolution of needs and effects of technology implementation. That means in this moment exists for each component of ***ELV*** *(End of Life Vehicle)* different technologies. According the technology life cucle [ ] some of its are in development, some in maturity, and some in exit phase.

With development of the new technological solution existing technology portfolio is shanged. The change depends on rate of progress of each project for development of the new technological solution of ***ELV*** recycling. Because that, in the paper are analized project evoluation and review techiques and quality techniques and tools as input for monitor technology portfolio progress and changes.

2. PROJECT MANAGEMENT

According project management principle and *ISO 10006* for project management (*End-of-Life Vehicle*). Phase of technology development process are analog with development of new product, i.c.:

1. overview and opportunity identification/selection,
2. concept generation,
3. concept/project evaluation,
4. development, and
5. launch.

For purpose monitoring and change the technological portfolio of ***ELV*** recycling most important is the first phase.

First, is recessary to define technology platform as a set of systems and intefaces that form a common structure. It is basis for all individual technology projects within a family of technologies.

Opportunity identification is next step based on six societal trends *(table 1).*

Table 1. *Technology opportunities*

No	Trend	Related Technology Opportunities
1	Just - in - Time Life	Exists high pressure for technology solutions
2	Sensing consumers (users)	Ecological and societal specific needs and requests
3	Transparent self	Available on different places and platforms
4	In search of "enoughness"	Enhancing a qualty of life
5	Virtual made real	Connecting with web
6	Co - creation	Cooperation with users in technology development

Next step is noncorporate strategic planning of technology portfolio using approprite matrix *(table 2)*.

Table 2. *Degree of innovativeness*

Risk		Change in operation/ marketing mode		
		name	**some**	**great**
Change in use	name	low	low	medium
	some	low	medium	high
	great	medium	high	dangerous

Baseuse that, only 2% of technologies are complely new for new products *(table 3)*.

***Table 3**. Share of new product and technologies*

Techno/ logies	products			Σ (expected using diferent references)
	old	modified	new	
old	40	30	30	100
modified	30	35	35	100
new	30	35	35	100
Σ	100	100	100	

After performing the market old analysis of products we find products 70%, modified 25% and 5% new products (present situation). That meens, totaly new technology in new products has share of 35 x 0.05 = 1.75%, what is extremly low level of new technologies. Starting from that, autors made concept to develop modified technologies, with using creative problem solving technique:

1. Who are we, and what do we do?
2. Who are our customers?
3. What about their demographics?
4. What are their behavioral traits?
5. What technology/core competence do we leverage?
6. What are our growth expectations?
7. What is our marketing plan?
8. What do we want to accomplish?
9. How much risk are we willing to take?
10. How should we time to entry in market?
11. What quality we expect?
12. Which are other factors important to consider?

At this moment we expect enhancement trough new technologies development *(table 4)*.

***Table 4**. Strategic technology portfolio model*

	Low Market Newness	High Market Newness
Low Product Newness	Improvement to Existing Products (30%)	Additions to Existinf Product Lines (30%)
Medium Product Newness	Cost Reduction (15%)	New Product Lines (15%)
High Product Newness	Repositioning (5%)	New - to - the World product

For purpose of development of foor family of products with different technologies, trough project , sustainable development of technologies and equipment for recycling of motor vehicles, we emphised medium product newness with cost production (15%) and new product lines (15%).

3. PROJECT EVOLUTION AND REVIEW TECHNIQUES

In *table 5* is presented basic data for generic technology development.

***Table 5**. Project schedule*

No	Phase	activity completion time (monts)			
		optimistic a	likely m	pessimistic b	variance
1	overview and opportunity identification	3	4	5	1
2	concept generation	6	9	12	2
3	concept project evaluation	3	4	5	1
4	development	12	15	18	3
5	launch	9	12	15	2

Using ***MS*** project is simulated project actvities and defined expected time for completition of project in amount of 30 monts. In *figure 1* is presented cummulative project completition cost as a function of project completition time.

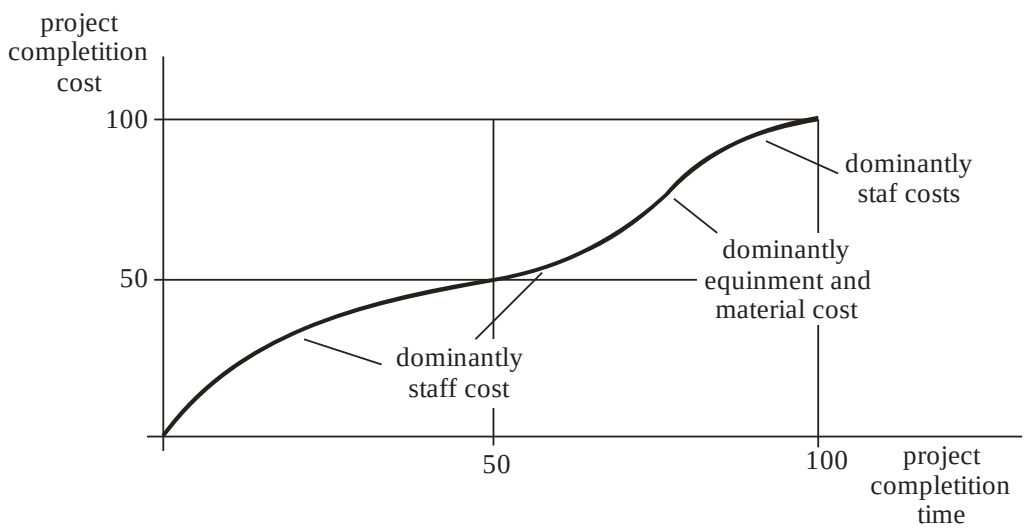

***Figure 1**. Cost function*

Becouse the project is in phase concept generation dominantly are staff cost.

Between project completition costs and project completition time can find relation, as presented in *figure 2*.

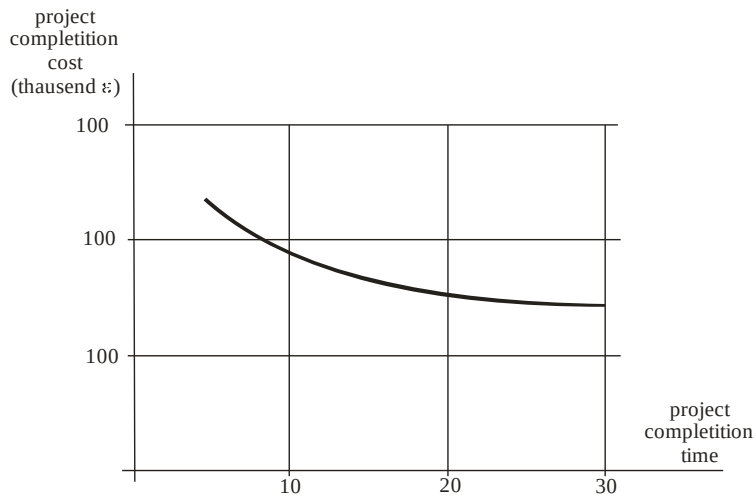

Figure 2*. Relation betwen project completition time and costs*

We a conclude that expected time of 30 monts is with minimum of costs. Becouse risk of the project, contracted time for project was 36 minutes.

4. CONCLUSION

From previous investigations we can conclude:

- tehnology portfolio can establish and monitor on project or organizational or regional level
- for ELV technology portfolio is dominant old and modified technologies, as a products
- ELV technology portfolio change is expected becouse continuly change of request and reeds of stakeholders,
- for proposed project is estimated optimal project competition time.

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