Risk Management for e-Procurement Implementation "Realization and Mitigation of Risks in IT Projects"

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Background Information

- Potential roles of information and technologies (ICT)
- Automation of Business enterprises especially in the developing world
- What is e-procurement (Origin)
- Why do companies need to digitize their procurement systems
- Option available when considering an e-procurement solutions

Different Types of e-Procurement models

- One to many model – combines sell side focus on many buyers to browse and purchase products.
- Combination of a buy side one to many model
  - Buy-side desktop requisitioning and buy-side internet-based central procurement.

Figure 1: Generic e-Procurement model

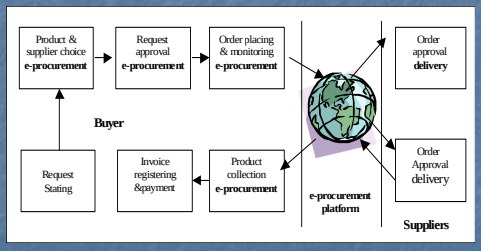


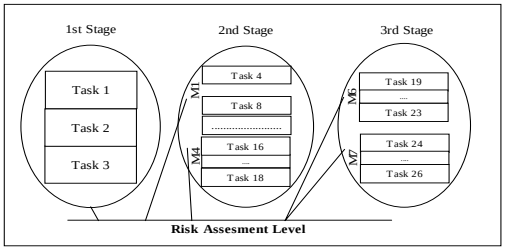
Table 1: components of Project Management and their Benefits to the project

Project Management Component	Project Benefits
Understanding the project scope	Predictable and deliverable results
Cost/Benefit Analysis	Management of risks
Tools/Methodologies	Control over quality
Planning	Control over costs
Resource Management	Control over timing
Quality Management	Control over change
Risk Management	Transparency
Controlling Change	Information flow

Table 2: Risk Management Processes

Risk Management Processes	Brief Explanation
Risk planning	The process of deciding how to approach and plan the risk management activities for a project
Risk identification	Involves determining which risks might affect the project and documenting their characteristics
Qualitative analysis	Aims at assessing the impact and likelihood of identified risks. This process prioritizes risks according to their potential effect on project objectives
Quantitative analysis	Aims to analyze numerically the probability of each risk and its consequence on project objectives, as well as the extent of overall project risk
Risk response planning	Leads to developing options and determining actions to enhance opportunities and reduce threats to the project's objectives
Risk monitoring and control	Is the process of keeping track of the identified risks, monitoring residual risks and identifying new risks, ensuring the execution of risk plans, and evaluating their effectiveness in reducing risk.

Figure 2: Graphical representation of risk assessment level



Risk Indicators

Name	The simpler the better
Definition	Understandable for everyone who is going to use it
Usage	Reason of indicator introduction and expectations from its usage
Frequency of measurement	How often it will be computed and which period of time is taken into consideration
Source parameters	Data collection method and data come from where
Estimation	Formula or rule according to which source parameters are transformed into indicator value

Looking at Risk map

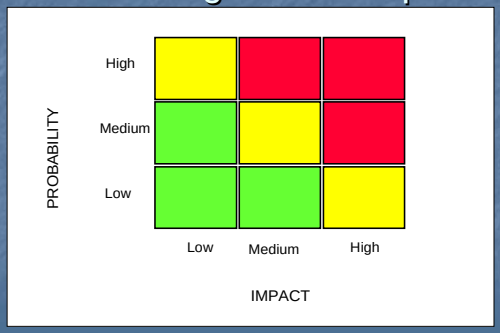
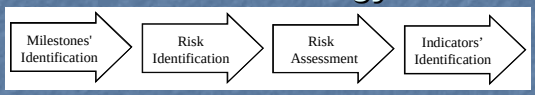


Table 4: Risk Identification

Risk	Explanation
R1	E-procurement projects were badly planned, *"Every moment spent planning saves three or four in execution" - Crawford Greenwalt* [1]
R2	Unrealistic expectations in the new technologies set by enterprises
R3	E-procurement is only an isolated tool.
R4	E-procurement alone is no replacement for a good purchase management
R5	Companies should ensure that employees are familiar with new technologies and understand their possibilities
R6	In addition, project progress should be supervised step-by-step. *"To climb steep hills requires slow pace at first". William Shakespeare"*
R7	"First think, then implement" – before e-procurement-technologies are employed, the intended business objectives should be completely clear.
R8	Additionally, for the implementation of new solutions every enterprise should employ specialists, which replace obsolete applications.
R9	Employees are badly trained.

[1] Quoted from: http://www.planter-pkvs.com/getquotes.asp?frame=1&KID=221&CrawfordGreenwalt download 17.08.08

Figure 4: Risk map creation methodology



Four steps of methodology;

Identification of project milestones as 1st step, 2nd step involves identification of risks that can occur during implementation of e-procurement solution,

3rd step is meant for assessing risks, identified during the second step, using 'Risk diagram,

4th step of the above-mentioned methodology involved identification of relevant indicators

Table `5: Simple risk analysis

Stage	Milestone	Risk Description	Risk ID
1st Stage		Bad planning of project	R1
		Project progress supervised step-by- step	R6
2nd Stage	M1	E-procurement treated as replacement for good purchase management	R4
		Clarity of business objectives	R7
		Obsolete application replacement	R9
	M2	E-procurement - isolated tool	R3
		Familiarity & understanding of new technology possibilities	R5
	M3	Unrealistic expectation in new technologies	R2
		E-procurement treated as replacement for good purchase management	R4
	M4	Bad employees' training	R9
	M5	*	
3rd Stage	M6	Familiarity & understanding of new technology possibilities	R5
	M7	Bad employees' training	R9
	M8	*	

Table 7. Categorization of risk's (People, Process, Technology – PPT)

REASON FOR E-PROCUREMENT PROJECTS FAILURE	RISK CATEGORY		
	PEOPLE	PROCESS	TECHNOLOGY
R1. Bad planning of project	+	+	
R2. Unrealistic expectations in new technologies	+	+	+
R3. E-procurement - isolated tool	+	+	
R4. E-procurement treated as replacement for good purchase management	+	+	
R5. Familiarity & understanding of new technologies possibilities	+	+	+
R6. Project progress supervised step-by- step	+	+	
R7. Clarity of business objectives		+	
R8. Obsolete application replacement	+	+	
R9. Bad employees' training	+	+	

Table 8. Impact factors and probability measure

IMPACT		PROBABILITY	RISK ASSESSMENT
Time	Budget		
4 weeks <	5% <	p < 0.01	Low
4-8 weeks	5-10%	0.01< p < 0.1	Medium
> 8 weeks	> 10%	p>0.1	High

Figure 9. Risk map

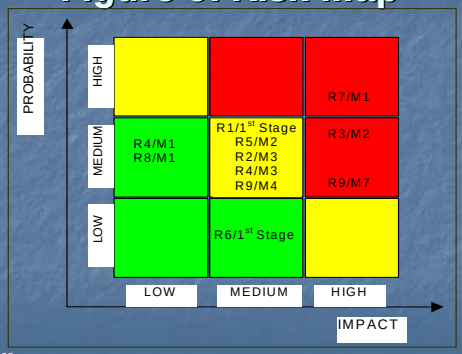
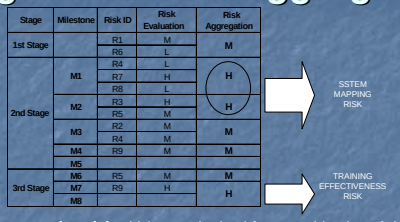


Figure 10. Risk aggregation



System mapping risk which was obtained from combination of risk R7 from milestone M1 and risk R3 from milestone M2.

Training effectiveness risk – resulting from risk R9 in milestone M7 and scale effect – greater number of employees selected for training in the 3rd Stage in comparison with number of users who supposed to be trained during 2nd stage – risk R7.

Identification of indicators for aggregated risks and reporting

Name:	System mapping indicator
Definition:	It shows system mapping level considering defined business objectives, required features and compatibility with other enterprise's systems.
Usage:	Monitors magnitude of high-level risk called system mapping
Frequency of measurement:	After 2nd and 3rd Stage of e-procurement implementation project
Source parameters:	Project documentation mainly schedule and its realization
Estimation:	$I_s \times O_b \times F_f$ where: $I_s = \left(\frac{\text{actual number of integrated systems}}{\text{general number of integrated systems}}\right)$ $O_b = \left(\frac{\text{actual number of achieved business objectives}}{\text{number of set business objectives}}\right)$ $F_f = \left(\frac{\text{number of initial/specified system features present in final version}}{\text{number of all initially/specified system features}}\right)$

Name:	Training effectiveness indicator
Definition:	It shows the level of users training effectiveness during the project progress.
Usage:	Monitors magnitude of high-level risk called training effectiveness
Frequency of measurement:	Weekly; measured period dated from project begin up to the day the measure is taken
Source parameters:	Project documentation mainly schedule and its realization
Estimation:	$I_{tr} \times U_{tr}$ where: $I_{tr} = \left(\frac{\text{number of carried out training weeks}}{\text{number of all planned training weeks}}\right)$ $U_{tr} = \left(\frac{\text{number of trained users}}{\text{number of all users}}\right)$

Conclusion

- Summary:
  - to get real business value out of technology two subsequent tasks have to be performed.
  - proper risk analysis concerning any system implementation project has to be carried out
  - the best result would be developing of a tool similar to risk map presented in this paper
- Recommendations:
  - develop a list of guidelines what should be investigated before e-procurement implementation project is started
  - standardized methods for activities like documentation preparation, risk assessment and project reporting must be introduced