Projektinhallinta: riskeihin varautuminen

Riskienhallinta

- Projektin valmistuminen pyritään takaamaan myös tilanteissa, joissa tapahtuu jotakin, mikä uhkaa projektin onnistumista
  - Tunnistetaan onnistumista uhkaavat riskit
  - Analysoidaan tunnistetut riskit:
    - toteutumisen todennäköisyys
    - toteutumisen vaikutukset
  - Suunnitellaan vastatoimet
  - Seurataan ja päivitetään riskejä projektin ajan
    - Riskienhallinnan ylläpito

Mikä on riski?

- Riski on tapahtuma, joka
  - on mahdollinen (todennäköisyys >0 mutta <1)
    - Jos todennäköisyys on yksi, niin kyse ei riskistä, vaan projektin rajoitteesta
  - toteutuessaan vahingoittaa projektia
- Riski voi olla
  - Projektikohtainen (project risk)
    - vaikuttaa aikatauluun tai käytössä oleviin resursseihin
  - Tuotekohtainen (product risk):
    - vaikuttaa kehitettävän tuotteen laatuun
  - Yrityskohtainen (business risk):
    - vaikuttaa (tekijä- tai asiakas-)organisaatioon

Risk	Affects	Description
Staff turnover	Project	Experienced staff will leave the project before it is finished.
Management change	Project	There will be a change of organizational management with different priorities.
Hardware unavailability	Project	Hardware that is essential for the project will not be delivered on schedule.
Requirements change	Project and product	There will be a larger number of changes to the requirements than anticipated.
Specification delays	Project and product	Specifications of essential interfaces are not available on schedule.
Size underestimate	Project and product	The size of the system has been underestimated.
CASE tool underperformance	Product	CASE tools, which support the project, do not perform as anticipated.
Technology change	Business	The underlying technology on which the system is built is superseded by new technology.
Product competition	Business	A competitive product is marketed before the system is completed.

Riskien tunnistus

- Pyritään löytämään kaikki riskit, jotka voivat vaikuttaa projektin onnistumiseen
  - käytännössä unohdetaan kovin epätodennäköiset ja merkitykseltään vähäiset riskit
- Riskit voivat liittyä
  - käytettyyn teknologiaan
  - henkilökuntaan
  - organisaatioon
  - käytettyihin työkaluihin
  - vaatimuksiin
  - kustannusten ja aikataulun arviointiin

Esimerkkejä riskien tyypeistä

Risk type	Possible risks
Technology	The database used in the system cannot process as many transactions per second as expected. (1) Reusable software components contain defects that mean they cannot be reused as planned. (2)
People	It is impossible to recruit staff with the skills required. (3) Key staff are ill and unavailable at critical times. (4) Required training for staff is not available. (5)
Organizational	The organization is restructured so that different management are responsible for the project. (6) Organizational financial problems force reductions in the project budget. (7)
Tools	The code generated by software code generation tools is inefficient. (8) Software tools cannot work together in an integrated way. (9)
Requirements	Changes to requirements that require major design rework are proposed. (10) Customers fail to understand the impact of requirements changes. (11)
Estimation	The time required to develop the software is underestimated. (12) The rate of defect repair is underestimated. (13) The size of the software is underestimated. (14)

Riskien analysointi

- Arvioidaan kunkin riskin osalta:
  - Toteutumisen todennäköisyys
    - prosentteina tai luokiteltuna (esim. viisi luokkaa vähäisestä erittäin todennäköiseen)
  - Vakavuus
    - jos riski toteutuu, millainen sen vaikutus on projektiin
    - luokitteluna (esim. tuhoisa, vakava, siedettävä, vähäpätöinen, merkityksetön)

Esimerkkejä riskien analyysistä

Risk	Probability	Effects
Organizational financial problems force reductions in the project budget (7).	Low	Catastrophic
It is impossible to recruit staff with the skills required for the project (3).	High	Catastrophic
Key staff are ill at critical times in the project (4).	Moderate	Serious
Faults in reusable software components have to be repaired before these components are reused. (2).	Moderate	Serious
Changes to requirements that require major design rework are proposed (10).	Moderate	Serious
The organization is restructured so that different management are responsible for the project (6).	High	Serious
The database used in the system cannot process as many transactions per second as expected (1).	Moderate	Serious

Esimerkkejä riskien analyysistä 2

Risk	Probability	Effects
The time required to develop the software is underestimated (12).	High	Serious
Software tools cannot be integrated (9).	High	Tolerable
Customers fail to understand the impact of requirements changes (11).	Moderate	Tolerable
Required training for staff is not available (5).	Moderate	Tolerable
The rate of defect repair is underestimated (13).	Moderate	Tolerable
The size of the software is underestimated (14).	High	Tolerable
Code generated by code generation tools is inefficient (8).	Moderate	Insignificant

Varautuminen riskeihin

- Analyysin perusteella päätetään mitkä riskit otetaan huomioon suunnitelmissa
  - Yleensä on syytä ottaa huomioon ainakin kaikki tuhoisat ja kohtalaisen todennäköiset vakavat riskit
- Valittuihin riskeihin varaudutaan
  - Vaikuttamalla toteutumisen todennäköisyyteen
  - Minimoimalla etukäteen haittavaikutuksia tilanteessa, että riski toteutuu
  - Suunnittelemalla toimintatapoja siinä tapauksessa, että riski toteutuu

Esimerkkejä varautumisesta riskeihin

Risk	Strategy
Organizational financial problems	Prepare a briefing document for senior management showing how the project is making a very important contribution to the goals of the business and presenting reasons why cuts to the project budget would not be cost-effective.
Recruitment problems	Alert customer to potential difficulties and the possibility of delays; investigate buying-in components.
Staff illness	Reorganize team so that there is more overlap of work and people therefore understand each other's jobs.
Defective components	Replace potentially defective components with bought-in components of known reliability.
Requirements changes	Derive traceability information to assess requirements change impact; maximize information hiding in the design.

Esimerkkejä varautumisesta riskeihin (2)

Risk	Strategy
Organizational restructuring	Prepare a briefing document for senior management showing how the project is making a very important contribution to the goals of the business.
Database performance	Investigate the possibility of buying a higher-performance database.
Underestimated development time	Investigate buying-in components; investigate use of a program generator.

Riskien seuranta

- Riskien toteutumista ja todennäköisyyksien muutoksia seurataan koko projektin elinkaaren ajan
  - Projektin kuluessa voi ilmetä uusia riskejä
  - Jonkin tunnistetun riskin todennäköisyys tai vakavuus voi muuttua
  - Jokin sellainen riski voi toteutua, johon ei ole varauduttu

→Projektisuunnitelmaa voidaan joutua päivittämään

Huolestuttavia merkkejä

Risk type	Potential indicators
Technology	Late delivery of hardware or support software; many reported technology problems.
People	Poor staff morale; poor relationships amongst team members; high staff turnover.
Organizational	Organizational gossip; lack of action by senior management.
Tools	Reluctance by team members to use tools; complaints about CASE tools; demands for higher-powered workstations.
Requirements	Many requirements change requests; customer complaints.
Estimation	Failure to meet agreed schedule; failure to clear reported defects.