How experienced IS developers makesense of new projects

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How experienced IS developers make sense of new projects

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Abstract

We describe the use of personal construct elicitation techniques to identify the situational characteristics that managers of custom-built IS development projects take into account when planning new projects for new customers. We show that the characteristics which managers take into account include most of those mentioned in the IS project risk literature, but also include some characteristics not included in this literature. A full-length paper is available on request.

Key Words/Phrases: IS Project Risk; IS Project Management.

Method

A group of 14 experienced IS developers, all located in Ireland, took part in the study. All managed custom-built, software-intensive IS development projects for external clients. For now on, we will refer to these developers as the project managers (PMs).

All worked with mainstream, current technology. All were in the business of providing custom-built information systems 'solutions' to commercial clients.

To identify the factors that the PMs took into account when planning new projects, we used the technique of personal construct elicitation (Bannister and Fransella 1989). A personal construct is a bi-polar distinction which a person uses when contrasting different people, objects, situations, and so on. For example, for me, an important distinction between dogs is the likelihood that a dog will bite me! So, when comparing dogs, or thinking about a particular dog, we are likely to think in terms of 'will he / won't he bite me?' People tend to have multiple sets of many interacting constructs to help them to make sense of the world. The task of identifying the set of constructs used by a person in a particular context is called personal construct elicitation.

We asked each PM to make a list of the systems development projects he/she had worked on as project manager over the past year or two. We then selected three projects randomly from the list and asked the PM: In what important ways are any two of these three projects the same, but different from the third, in terms of important situational factors you had to think about when planning the project?

We asked the PM to repeat this task with different triads of projects, until no new situational constructs were being elicited (or boredom/exhaustion had set in!).

A typical construct elicitation session lasted for about one hour. The shortest session was about 30 minutes. The longest session was about 90 minutes. The modal number of triads considered in a session was four.

The constructs elicited
A total of 201 constructs was elicited from the fourteen PMs. The mean number of constructs identified by the PMs was 14.4. The minimum number identified was ten. The maximum was nineteen. The modal number of constructs identified was thirteen.

In Table 1, we show a 50% sample of the constructs which were mentioned by three or more of the sixteen PMs.

**How do the constructs relate to situational and other project characteristics highlighted in the IS project risk literature?**

Barki, Rivard and Talbot (1993) conducted a wide review of the literature with a view to building a comprehensive inventory of variables that have been shown to be related to IS development project risk. The scope of the literature they reviewed covered both in-house development and custom-development on behalf of external clients.

There seemed to be a lot of commonality between the constructs elicited in the present study and Barki's risk variables. In fact, there was quite a number of almost one-to-one correspondences. However, a number of the themes running through the personal constructs do not appear to be represented in Barki's risk variables. The most striking apparent 'gap' is the absence of risk variables directly 'tapping' the level of the client's apparent knowledge/understanding/clarity regarding system requirements. Fourteen personal constructs fall under this theme.

The next set of constructs which seem to have no direct counterparts among the risk variables Barki identified in the IS development literature is those relating to the distribution of control over the project. An example of a construct on this theme is 'We will have some influence over the requirements / The requirements seem to be already set in stone.'

<table>
<thead>
<tr>
<th>We won't have to do any tricky interfacing with existing applications written by others</th>
<th>We will have to do some tricky interfacing with existing applications written by others</th>
</tr>
</thead>
<tbody>
<tr>
<td>The client / sponsor is a clearly identifiable person</td>
<td>The client / sponsor is diffuse (e.g. a committee)</td>
</tr>
<tr>
<td>The person handling the project on the client's side has the time, skill and authority needed</td>
<td>The primary person on the client's side lacks the time, skill or authority to do the job</td>
</tr>
<tr>
<td>We are just computerising existing procedures / systems</td>
<td>The procedures / system we design will be new to the client</td>
</tr>
<tr>
<td>The system involves just a single functional area</td>
<td>The system will span a number of different functional areas</td>
</tr>
<tr>
<td>They seem to have thought-out their requirements</td>
<td>They haven't thought-out their requirements</td>
</tr>
<tr>
<td>The client has realistic expectations about time, cost and what's 'do-able'</td>
<td>The client has unrealistic expectations</td>
</tr>
<tr>
<td>We will be able to juggle a bit with time-scales</td>
<td>We are working to a tight client-imposed time-scale</td>
</tr>
<tr>
<td>We only have to satisfy a single group of similar users</td>
<td>Our solution has to satisfy multiple groups of users with different needs</td>
</tr>
<tr>
<td>The development methods to be used are new to us</td>
<td>We will be using familiar development methods</td>
</tr>
<tr>
<td>We will be dealing directly with the users</td>
<td>We won't be dealing directly with the users</td>
</tr>
<tr>
<td>We can pilot the new system until we get it right</td>
<td>The new system has to go right first-time</td>
</tr>
<tr>
<td>We will be implementing on technology which is not very new</td>
<td>We will be implementing on technology which is pretty new</td>
</tr>
<tr>
<td>We will be able to show the client an early prototype / mock-up</td>
<td>We won't be able to show the client an early prototype / mock-up</td>
</tr>
</tbody>
</table>

**Table 1: Bi-polar constructs mentioned by three or more PMs**
Barki identified no risk variables relating to the 'interface' to the client organisation through which the developer must work. A number of constructs address this theme. An example is: 'We will be dealing mainly with a single individual / We will be working mainly through a committee.'

Four of the fourteen developers in our study declared constructs dealing with the possibility of validating and testing the 'solution' before unveiling it to the client. One example is: 'We will be able to show the client an early prototype or mock-up of the solution / We won’t be able to show the client an early prototype or mock-up.' Barki identified no corresponding risk variables in the literature.

Other themes running through the personal constructs which do not appear in the IS risk literature concern the client's willingness and capability to handle implementation issues, the degree of freedom of choice of platform/environment available to the developer, and the criticality and degree of 'reversibility' of the roll-out of the new system.

These apparent omissions in the IS project risk literature are puzzling!

References
