

Eva Estok, PhD:

Revision of social construction of technology theory in the context of IT development projects

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Abstract: In my paper, I would like to describe the situation and consequences of using the social construction of technology theory during 5 different IT development projects in the insurance business. This is based on personal experience of 3 years as I have participated at these projects as the person responsible for testing and defect management. After a short introduction of these IT projects (scope, user groups, business processes, communication, etc.), project phases and functionalities (management, methodology, documentation, tools), I would like to outline how social construction of technology theory can be used efficiently during everyday project work. Furthermore, I would add another feature to this theory, namely the satisfaction factor that summarizes the following elements: completion status of the task, adequacy to professional aspects, user acceptance and adequacy of communication.

1. Methodology and background

During the completion of PhD studies in the area of innovation systems, the author had the possibility to apply acquired theoretical knowledge in the practice, namely to work as IT development consultant in the Hungarian IT insurance business. It was a real challenge to translate the knowledge gathered on knowledge society, new ways of producing knowledge, co-evolutionary learning theories, innovation dynamics, user interaction into everyday project development, specification error handling and testing work related to decision-making, communication and documentation performed with a group of developers and users and business consultants and project managers taking several different roles.

2. Social construction theory of Pinch – Bijker

According to the author, the most successful theoretical model in mind proved to be the social construction theory of Pinch – Bijker, who included all human and non-human participants into their technological system (they are artifacts). Different social groups open a discussion on technology through problems they perceive with their different aspects (interpretative flexibility), different social mechanisms influence and limit this interpretative flexibility, social negotiation process over technology are created and finally, when the relevant social groups see their problems solved, the negotiation processes are closed and the understanding of technology is crystallized (closure process). See Table 1.

3. Elements of social construction theory – contextualized

This framework provides a better understanding of different layers of knowledge – and tasks emerging from these layers – and to make decisions efficiently, involving all relevant parties and to see their roles at adequate communication levels.

Putting the notion of social groups into the context of insurance IT development projects, there are users, lead users, proxy users, managers of the insurance IT systems on one side (they are the Clients) and there are the developers and business consultants on the other side (they are the Developers). In general, they have rather different organizational structure, business processes, communication channels and culture and decision-making culture.

The artifact in this context is the IT system that is to be developed. It includes the selected platform and functionalities and hardware and software embedded in fields/ screens/ calculations/ processes/ batches / other procedures.

The problem-solving process or the negotiation process contains several layers. The project milestones, resources and cost requirements provide the framework for common work. There is a planning phase when all expected or required functionalities of the system are described and a development phase when the required functionalities are developed, interpreted, re-interpreted, re-documented, tested and delivered. This

interpretation activity includes learning and trying cycle for all participants: they describe the expected functionalities, trying to taking into consideration the inherent features of the IT system, then they create system programs to perform that functionality, then they fine-tune the program, modify the program or modify the required functionality in order to obtain a final version of the system. During this learning and trying cycle different layers of learning take place (on program writing level, on insurance business understanding level, on communication level, on human relations level, etc.). But the peak of learning that concerns the most people is project level learning: a whole number of different issues are raised and solved. They can be information requests: Is this question makes part of the functionality? They can be errors: The system does not work according to required functionalities. They can be further development requests:) (errors, information requests, development requests). Of course, adequate communication has to be used to solve these issues: topics should be summarized to all people concerned up to their interest and follow up and feedback of the matters should take place when all participant think it is relevant, etc.

4. Project management and business consultants act as catalysts

Articulating the important of this negotiation process and interpretative flexibility in a different way, one should say that there should be a group of participants who are responsible for creating rapid, efficient and long-term agreements among all participating groups and who can themselves understand project problems and roles rapidly and contextualize them into the project – to put it shortly, to act as catalysts. They should provide a community of working people together on the basis of common trust and understanding. The main questions are: How to do and What to do? The main layers within the projects are the following: framework for negotiation process, catalyzing of interpretative flexibility and perfect and rapid execution. These layers and questions are described in the summary table below (see Table 2). This is the most efficient and most hidden tasks of the project that either project managers of business consultants or both can undertake: to provide a rigid framework for enhancement of creativity and reaching local optimum in all individual information-learning bargaining cases. It is a harsh contradiction between respecting deadline and opening up time and room for creativity,

for interpretation of technology for a unique case. From the aspect of communication, there is also a contradiction to be solved: on one side, problems and issues should be solved by a deadline through perfect execution, and on the other side: users, developers and all other participants should be invited in the solving of the problem in a friendly way.

4. User satisfaction factor

In the solving of all project related problems (which may mean understanding and responding of approximately dozens of letters every day throughout months, years), project managers and business consultants should focus on keeping user satisfaction high. Therefore each issue should be closed in a user friendly way. All project steps should be foreseen and the agreement of all relevant users should be kept for these steps. All feedback should be provided in a timely and informative manner. In case of any situation when there might be any losers, all possible losers should be listened to and ways of counteracting their loss should be built up and executed in a transparent way. The main point is that no fear or ambiguity should be left behind. For project managers and business consultants this seems to be a race for not avoiding all traps in a field.

What does this activity brings? First of all, transparency and trust. Second, it raises empathy and understanding of others' problems. Thirdly, it creates a community where all people have their tasks, roles and paths of learning and making errors.

5. Social construction theory of Pinch – Bijker - contextualized

In the revised – and contextualized – interpretation of social construction theory of Pinch-Bijker, an important thing is that problems are translated into project-related functionalities, errors, information requests or development requests. The problem-solving negotiation process and interpretative flexibility includes a permanent feedback on user satisfaction: whether it is rational to raise that peculiar issue, to order timeline and resources to that peculiar issue and to relate other problems to that peculiar issue in a way that users accept it with business intelligence (see Table 3).

Table 1. Social construction theory of Pinch-Bijker (1987, 35-36.)

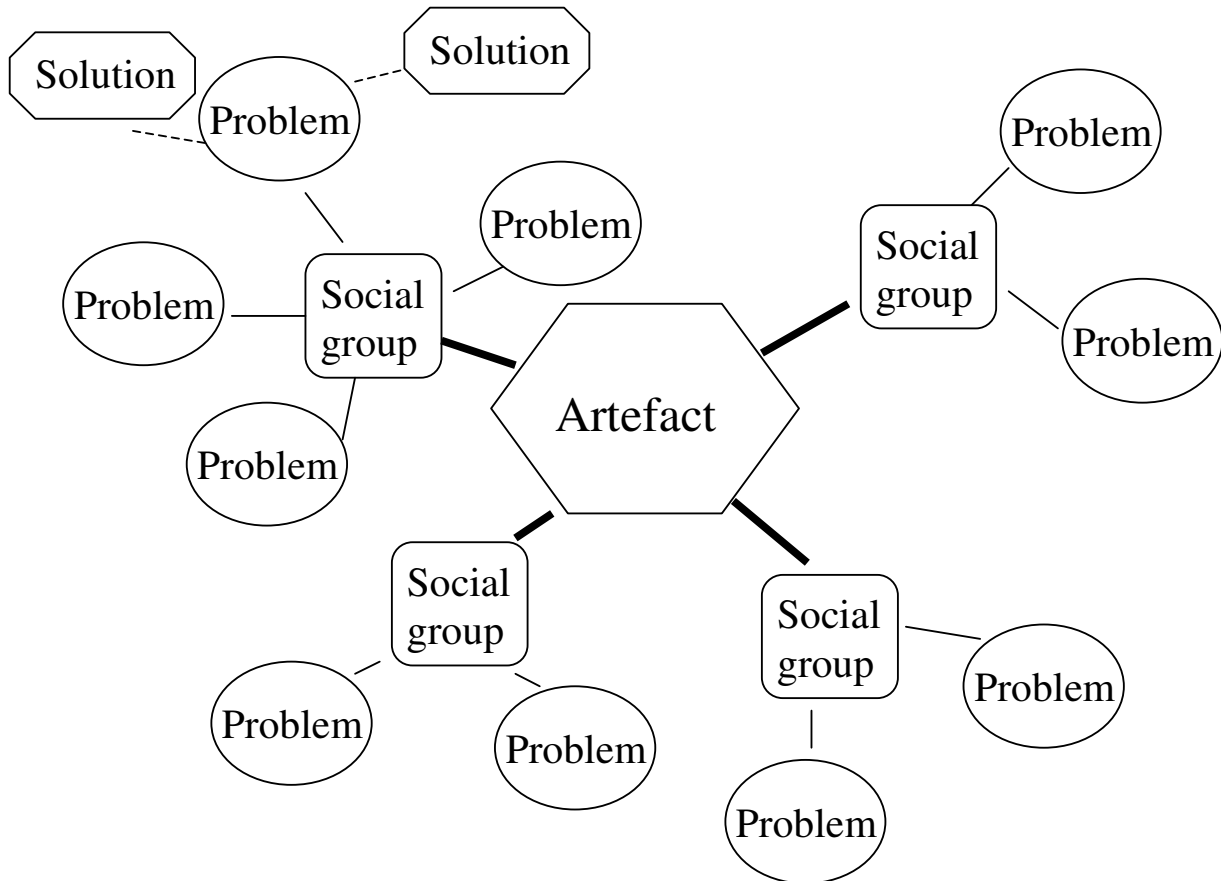
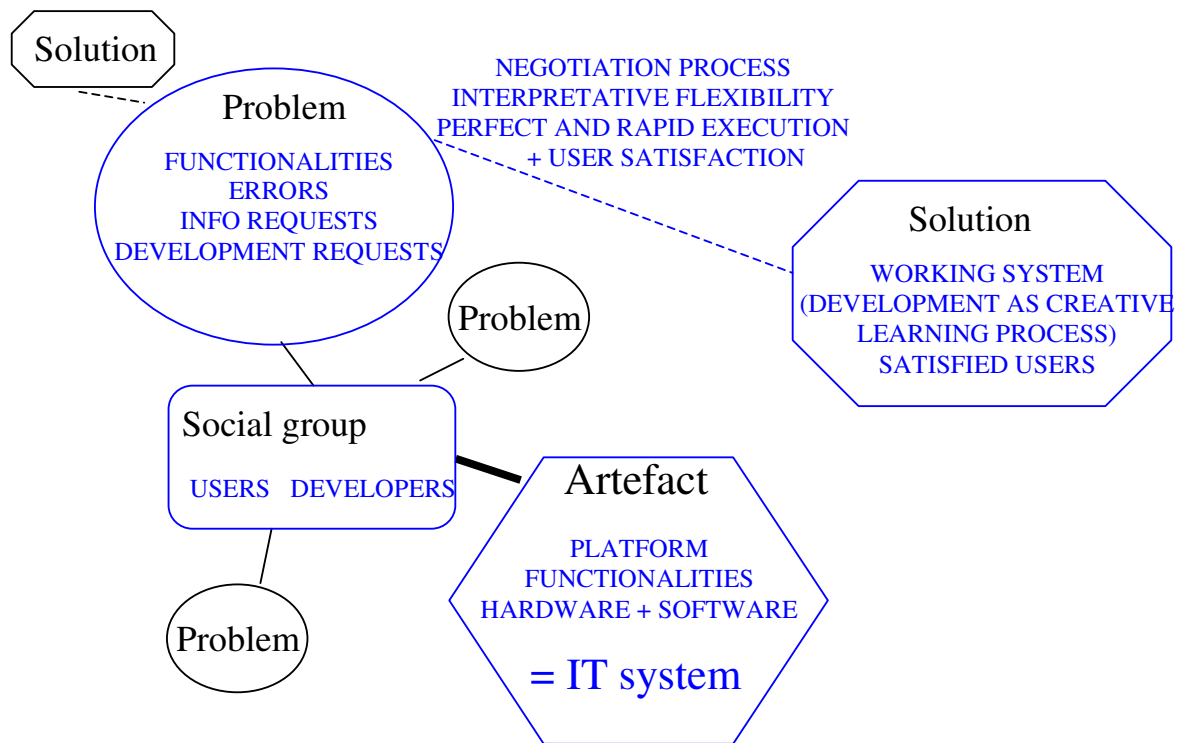


Table 2 Project managers and business consultants act as catalysts

	What to do?	How to do?
Framework for negotiation process	Deadlines for phases	Inform/teach users on relevant frameworks / develop them together
	Project roles	Make relevant frameworks available to users
	Resources	Show/teach them how to use these frameworks
	Definition of functionalities (templates, responsables, approval process)	Answering all issues in an acceptable time
	Definition of error reporting (error management system, user rights & responsibilities, prioritization)	
	User manuals	
	Training materials	
	Test plans	
	Catalysing of interpretative flexibility	Contextualization of problems:
Why are they important?		Understand how the system works
To what extent are they important?		Search for connections and interdependencies
What are users expected to do?		Develop rapid and trustable ways to verify information
What will happen as next step?		Develop rapid and efficient search heuristics
What are the costs of not making decisions / delay decision making?		Understand all relevant business processes, regulations, project history, etc.
Creativity <-> Deadline		
Adequate communication		
Perfect and rapid execution	Confirmation of decision	Take responsibility of failures, „white spots“
	Hard development work	Be pro-active, asking „What might be the consequences if I do this and that?“
	Hard concentration work	Involve users in common learning points
	Hard communication work	Involve users in success/ celebration of success
	Feedback on progress	
	Immediate feedback on any possible delay	
	Answering all issues in an acceptable time	

Table 3. Social construction theory of Pinch-Bijker – contextualized



Literature:

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