

# The Involvement of Users as Co-Producers of Knowledge in Information System Development Process

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## Abstract:

Our study shows that users can even be very important a part of data system development in its varied stages. supported a paper we have a tendency to gift our hypothesis that data provided by users by information, past experiences and learning will cause higher project management. Establishing a relationship between user and knowledge system will improve the look stage development of the project and as a result higher project performance are often obtained. Project management data, system analysis skills, programming data, information administration data square measure a number of the areas within which users will contribute. In the development stage, users ought to participate within the review method to confirm that the integrated data (system design) is meted out effectively by the developers. Users will facilitate to find or expose inappropriate styles as early as doable to scale back supererogatory prices. This paper additionally focuses on establishing understanding between users and developers.

*Keywords* — EXPERIENCE, MANAGEMENT, DEVELOPEMENT, SKILLS

## Introduction

The Management system department in a very company has long been thought to be a support operate. Moreover, system development (ISD) work is treated as a crafting whole thing to support business operation. It's understood as a technique through that developers transform user desires into system vogue therefore implement the designed system to satisfy these desires. However, researchers have found that comes unit of measurement off or cannot be completed within predefined budgets and costs as a results of the developed outcome does not meet the users' desires.

One major reason for ineffective system development can be an absence of user engagement at intervals the event methodology. associate rising perspective, named service-dominant logic, suggests that customers may act as price co-producers. As ISD can be a info intensive methodology, the developed system might even be viewed as a replacement info that mixes developers' IT info and business users' domain info. the value created through the event methodology is that of co-production, resulting in a system which could be viewed as new info co-produced by users and developers.

Users square measure impressed to act at intervals the event methodology to spice up the value of the developed system by avoiding associate outcome that fall wanting

of actual want. In avoiding this danger, the additional costs and time required to repair inappropriate vogue at intervals the first stages of development work can also be avoided. this means the importance of users, UN agency should not be ignored once following high project performance.

## **Literature Review and Hypothesis Development**

### **WHAT IS CO-PRODUCTION?**

Co-production suggests that delivering public services in associate equal and reciprocal relationship between professionals, folks victimization services, their families and their neighbors. Wherever activities are co-produced during this manner, each services and neighborhoods become much more effective agents of modification. The central plan in co-production is that folks World Health Organization use services ar hidden resources, not drains on the system, which no service that ignores this resource is economical. The folks that ar presently outlined as users, purchasers or patients offer the very important ingredients which permit public service professionals to be effective. they're the essential building blocks of our missing neighborhood-level support systems – families and communities – that underpin economic activity moreover as social development.

### **USERS AS CO-PRODUCERS**

ISD are often viewed as a problem-solving method within which developers apply their data to resolve issues raised by users. This method involves intensive data. In general, so as to hold out data system development, members of the team should possess sufficient knowledge-based resources, like project management data, system analysis skills, programming data,

info administration data, etc. additionally to system development data, business data is one in all the crucial resources for prosperous system development. However, this varied forms of data within the team doesn't guarantee the ultimate performance. To pursue common goals in comes needs completely different stakeholders to rework their individual-level data into collective data. Therefore, data possessed by users and developers got to be accessed, leveraged, shared, and maintained for the good thing about the project .

### **KNOWLEDGE POOLING**

Since data is one amongst the foremost crucial resources in associate ISD project, the shortage of adequate data ends up in risks , will increase uncertainty , and inhibits the educational method. However, having the specified data alone doesn't guarantee the ultimate outcome of the project. Rather, effective system development needs differing types of data to be integrated thus on counter uncertainties and quality. One project management study distinguished that project performance is set by the extent of success with that developers and users integrate their owned data, that is plagued by the extent to that they perceive one another. this suggests that the possession of business data for developers and therefore the possession of ISD data for users alter each parties to grasp and to participate within the other's key processes and to respect every other's distinctive contribution and opinion.

The business data of the IS developer is outlined because the set of business and social data and skills possessed by IT professionals that alter them to grasp the business domain, speak the language of business, and move with their business partners. The users' IT data and skills talk to

users' overall data and skill within the IS development tasks and processes. IT data and skills is that the power required to develop IT applications and to control those applications to meet relevant tasks. It includes data of programming languages, expertise of operative systems, and understanding of communication protocols and merchandise. Public data is that the combination of developers' business knowledge and users' IT knowledge.

provided that the number of public knowledge between users and developers is key for achieving mutual affection, the IT data of users and therefore the business data of developers therefore play a vital role in rising the effectiveness of user-IS data co-production.

Since the most purpose of users participating within the development method is to contribute their data to see actual needs to make sure that user needs so is incorporated into system style, developers ought to integrate users' data with their own. The business-related data of IS developers is a driver that permits them to speak with users to make sure effective data integration . If users are accustomed to IT data and have expertise of IS development, it's additional doubtless for them to specific their desires in an exceedingly method that developers will simply reply to. On the opposite hand, developers are ready to perceive users once developers possess sturdy business data, permitting the ensuing system style to raised mirror users' desires. Therefore, we have a tendency to predict that in the ISD method, data co-production between developers and users facilitates economical development of a package answer that's additional doubtless to mirror its supposed objectives. Thus, we have a tendency to set the subsequent hypothesis:

**HYPOTHESIS 1: The QUALITY of**

**the relationship**

The user-IS relationship is outlined because the level of mutual trust, respect, and closeness of relationships between users and developers. within the context of ISD, a robust partnership between users and developers is needed for economical coming up with and therefore the developing of recent applications. However, the bulk of data integration doesn't undergo the established or documented procedures. It implies that the combination of data possessed by developers and users into project-relevant activities needs every other's trust and respect. Higher levels of relative capital enhance the chance of developers and users being willing to exchange and mix their domain information throughout the ISD method. in step with strong-tie theory, a detailed relationship between each parties is important to change every to contribute their individual level information to create project level information. once there area unit sturdy and trusting relationships between developers and users, the prices of communication, coordination and combination of every other's information can decrease, and successively, facilitate the effectiveness of user-IS information combination. Thus, this study suggests that the link between users and developers is a crucial element which boosts the impact of common information on the user-IS knowledge co-production method.

**HYPOTHESIS 2:**

**The EFFECTIVENESS of requirement determination**

Project management literature outlined project outcome because the ability to fulfill project goals inside a predefined budget and schedule. Project performance is set by numerous factors, one in all the foremost

important being whether or not the particular user needs are captured within the system style stage. The system style work is viewed as a method within which users categorize the business wants and system analysts rework those wants into system style on the idea of their system style information. It can even be viewed as a method of integration of the business information of those 2 parties. Once the look work has been completed, writing work is then appointed to individual programmers. Correct functions are developed if system analysts are able to rework user needs into system style. In distinction, performance is impaired if system style cannot mirror actual users' wants, creating remedial work ineluctable to correct the inadequate styles. This, in general, ends up in schedule delay and additional prices. Empirical studies conjointly indicated that failure to integrate existing information is one in all the foremost barriers to manufacturing high project performance.

### **HYPOTHESIS 3:**

#### **The LEVEL of common knowledge**

As indicated within the previous section, several comes cannot adhere to predefined schedules or budgets as a result of development groups fail to spot potential issues. These embrace failure to spot actual necessities within the early stages. In fact, several systems square measure 1st conferred to finish users or senior managers throughout the testing or maybe implementation stages. This leads to the identification of case flaws and inappropriate functions within the latter stages of the project. The remedial work prices for flaws found within these latter stages square measure a lot of higher (40 to a hundred times) than they might be if known in the early stages. overtime and prices square measure then required to repair

the inappropriate style. Project performance is additionally impaired once the project team fails to get flaws and defects within the early stage. additionally, users can refuse to use the system if it fails to perform PRN.

One attainable approach to avoid the higher than drawback is to utilize users within the development method to make sure the developed product satisfies users' wants. Users ought to review the work completed by developers sporadically thus on scale back unessential prices caused by inappropriate style. what is more, necessities could alter with the emergence of recent technology and changes to the external atmosphere. Users ought to additionally give the foremost current data so as to counter uncertainties ensuing from external environments. supported the higher than discussion, we tend to predict that users engaged within the development method to review sporadically the work done by developers will reduce the negative impact of inappropriate style.

### **HYPOTHESIS 4:**

#### **RISK MANAGEMENT**

When the users square measure concerned within the development of the project right from the planning section to the implementation section, the chance of project failure is greatly reduced. we are able to support this statement by looking every and each step of a risk management procedure.

The steps of risk management are:

- Establish goals and context: The purpose of this stage of designing allows to know the atmosphere within which the several organization operates, meaning to completely understand the external atmosphere and also the internal

culture of the organization. The institution of the context and culture is undertaken through variety of environmental analyses that embrace, e.g., a review of the restrictive needs, codes and standards, business pointers in addition because the relevant company documents and also the previous year's risk management and business plans.

- Identify the risks: Key queries that will assist your identification of risks include: –
  - For U.S. to realize our goals, when, where, why, and the way ar risks possible to occur?
  - What ar the risks related to achieving every of our priorities?
  - What ar the risks of not achieving these priorities?
  - WHO could be concerned (for example, suppliers, contractors, stakeholders)?

The appropriate risk identification methodology can depend upon the applying space (i.e. nature of activities and therefore the hazard groups), the character of the project, the project section, resources on the market, regulative needs and consumer needs on objectives, desired outcome and therefore the needed level of detail.

- Analyze the risk: Risk analysis involves the thought of the supply of risk, the consequence and probability to estimate the inherent or unprotected risk while not controls in situ. It additionally involves identification of the controls,

associate estimation of their effectiveness and also the resultant level of risk with controls in situ (the protected, residual or controlled risk). Qualitative, semi-quantitative and quantitative techniques area unit all acceptable analysis techniques betting on the danger, the aim of the analysis and also the data and information accessible.

- Evaluate the risk : Once the risks are analyzed they will be compared against the antecedently documented and approved tolerable risk criteria. once mistreatment risk matrices this tolerable risk is mostly documented with the danger matrix. ought to the protected risk be bigger than the tolerable risk then the precise risk desires extra management measures or enhancements within the effectiveness of the present controls.
- Treat the risk: An unacceptable risk wants treatment. the target of this stage of the danger assessment technique is to develop worth effective selections for treating the risks.
- Monitoring the risk: It is vital to know that the conception of risk is dynamic and wishes periodic and formal review.
- Communication and reporting: Clear communication is important for the chance management method, i.e. clear communication of the objectives, the chance management method and its parts, further because the findings and needed actions as a results of the output.

Users can supplement the foundation

of risk management through their knowledge. When their knowledge is integrated, the developers can use the following while performing the above steps :

- **HISTORICAL EXPERIENCE**

The historical records in the user knowledge acts as a case study for the developers, so that they can learn from the previous mistakes.

- **ANALYTICAL METHODS**

If the user has any superior

analytical methods at their disposal, it is now available to the developers as well for development and testing purposes.

- **KNOWLEDGE AND EXPERIENCE**

The various market trends, the cut-throat technologies used at present, competitor product details etc. are among the other valuable data obtained through knowledge integration with the user.

## TESTING VALIDITY OF THE HYPOTHESIS

We will now try to prove the validity of the above made hypothesis. In order to achieve this, we will first list all the possible constructs involved in the process of an information system development. Then every aspect related to the user, developer and their mutual relationship involved in that construct will be listed in an descending order based on their significance and their magnitude of impact on the project development process.

CONSTRUCTS	ITEMS	ITEM CO-RELATION	TOTAL
Developers' business knowledge	1)The developers ar intimate the key success factors that has to go right if the corporate is to succeed.	1) 0.67	
	2)The developers perceive the company's policies and plans.	2) 0.64	
	3)The developers ar ready to interpret business issues and develop applicable technical solutions.	3) 0.73	
	4)The developers ar intimate business functions.	4) 0.60	
Users' IT knowledge	1)Users ar conversant in IT.	1) 0.63	
	2)Users have lots of expertise in IS development.	2) 0.78	

	<p>3)Users ar conversant in this application.</p> <p>4)Users ar conversant in the method of IS development.</p> <p>5)Users ar conversant in their role during this project.</p> <p>6)Users ar awake to the importance of their role during this project.</p>	<p>3) 0.68</p> <p>4) 0.78</p> <p>5) 0.68</p> <p>6) 0.61</p>
User–IS relationship	<p>1)There is shut, personal interaction among developers and users</p> <p>2)There is mutual respect between developers and users</p> <p>3)There is mutual trust between developers and users</p> <p>4)There is personal relationship between developers and users</p>	<p>1) 0.84</p> <p>2) 0.80</p> <p>3) 0.80</p> <p>4) 0.80</p>
Requirement determination	<p>1)Developers ar ready to transfer what users say into system style</p> <p>2)Users ar ready to describe needs within the method that developers will comprehend it clearly</p> <p>3)Developers used the method that users will perceive to assist them to specific their wants</p> <p>4)Developers and users ar skilful at combining and exchanging ideas to unravel issues in system</p> <p>5)Developers and users did an honest job of sharing their individual ideas to return up with new systems</p> <p>6)Developers and users ar capable of sharing their experience to bring new ideas into system</p> <p>7)Developers and users transfer their own information to every alternative</p> <p>8)Developers and users build shared which means toward every other's experience (knowledge)</p>	<p>1) 0.80</p> <p>2) 0.84</p> <p>3) 0.84</p> <p>4) 0.74</p> <p>5) 0.73</p> <p>6) 0.77</p> <p>7) 0.81</p> <p>8) 0.69</p>
User review	<p>1)Users formally approved work</p>	<p>1) 0.84</p>

	done by the developers 2)Users formally reviewed work done by developers 3)Users were hip to progress and/or drawback 4)Users signed off a formalized agreement	2) 0.71 3) 0.65 4) 0.68
Project performance	1)This ISD project meets predefined goals. 2)In this ISD project, expected quantity of labor completed. 3)In this ISD project, top quality of labor completed 4)In this ISD project, there's adherence to schedule.	1) 0.72 2) 0.65 3) 0.68 4) 0.79
Task uncertainty	1)The sequence of activities needed to accomplish my task is: simply identifiable /hardly identifiable 2)The results of the activities in my task are: straightforward to predict/hard to predict 3)Well-defined information on that the accomplishment of my task may be based: exists does/not exist	1) 0.84 2) 0.70 3) 0.64
System complexity	1)It is tough to work out the data needs of the system. 2)The quality of the process is high. 3)The overall quality of the system style is high.	1) 0.69 2) 0.68 3) 0.73

Now based on the data in the above table, through careful critical analysis and logical reasoning, we have derived a conclusion and it can be seen clearly how the user-developer relation is mutually beneficial as well as beneficial for the overall success of the project itself.

Descriptive analysis and correlation matrix.

Variables	Mean	Std. dev.	M3	M4	Correlation matrix								
					DBK	UIK	UIR	KI	UR	PP	TU	SC	
Developers' business knowledge	5.30	0.85	-0.42	-0.15	0.82								
Users' IT knowledge	4.52	1.02	-0.05	-0.23	0.36	0.80							
User-IS relationship	5.21	1.09	-0.55	-0.37	0.24	0.37	0.85						
Requirement determination	5.30	0.81	-0.38	-0.32	0.40	0.40	0.61	0.80					
User review	5.22	0.88	-0.14	-0.49	0.34	0.32	0.29	0.32	0.85				



Project performance	5.22	0.94	-0.42	-0.15	0.33	0.38	0.42	0.38	0.23	0.80		
Task uncertainty	5.24	0.90	-0.75	0.63	0.34	0.26	0.34	0.38	0.25	0.40	0.83	
System complexity	5.06	1.07	-0.68	0.68	0.08	0.08	-0.01	0.07	0.06	-0.05	-0.06	0.78

M3: Skewness; M4: Kurtosis.

The diagonal line of correlations matrix represents the square root of AVE

## Conclusion

The purpose of this study is to grasp but users may operate as information co-producers inside the planning and development method. we tend to projected that inside the planning stage, higher style quality ar typically obtained once users and developers possess information concerning every other's domain. Moreover, once noesis is lean, the affiliation between developers and users plays a awfully necessary role. within the development stage, users need to participate within the review method to verify that the integrated info (system design) is administrated effectively by the developers. Users can facilitate to look at or expose inappropriate styles as early as come-at-able to reduce supernumerary costs. The results counsel that noesis options a positive impact on demand determination, that ends in higher project performance. The impact of noesis on demand determination is betting on the user-IS relationship. Moreover, user review moderates the

affiliation between demand determination and project performance.

The significant and positive result suggests that project performance may be a operate of the extent to that users and developers can integrate their own information to develop new information. User review plays a task throughout this methodology. once demand determination is low and system style cannot completely meet users' wishes, user review may be a tool for detection and repairing inappropriate styles. comes ar typically higher accomplished inside time and on budget if inappropriate styles ar referred to as early as come-at-able. However, once information from every parties is integrated and a high-quality style is therefore realizable, user review need to be neglected since the extra worth might impair project performance. This supports the quality theory that users need to engage inside the event method on condition that needed.

## REFERENCES

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