HOW DOES DIFFUSION IMPACT DEVELOPMENT OF INNOVATION

KAKO DIFUZIJA UTJEČE NA RAZVOJ INOVACIJE

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Abstract: *The invention-innovation-diffusion processes (IIDP) consists of three phases: (1) discovering ideas and turning ideas into inventions, suggestions, and potential innovations, which is more or less an internal process in organizations, (2) finding the first happy customers ideas to become innovations, and (3) finding many happy customers by diffusion. IIDP is finished once all chances are used up in diffusion. Success in diffusion provides to investors courage to repeat the IIDP. They may imagine that success in IIDP is normal: even official innovation projects succeed in less than five percent of cases. We will focus on phase 3.*

Key words: *invention, innovation, diffusion, innovation paradox*

Sažetak: *Proces izum-inovacija-difuzija (IIDP) sastoji se od tri faze:(1) pronalaženje ideja i njihovo pretvaranje u izume, prijedloge i moguće inovacije, što je manje-više unutarnji proces u organizaciji, (2)pronalaženje ideje prvih sretnih kupaca koje će postati inovacije i (3)pronalaženje mnogo sretnih kupaca difuzijom. IIDP je završen kada su iskorištene sve mogućnosti u difuziji. Uspjeh difuzije investitorima daje smjelost da ponove IIDP. Oni mogu pretpostaviti da je uspjeh IIDP-a uobičajen: čak i službeni inovacijski projekti uspijevaju u manje od pet posto slučajeva. Mi ćemo posvetiti pažnju trećoj fazi.*

Ključne riječi: *izum, inovacija, difuzija, inovacijski paradoks*

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1. Introduction

The invention-innovation-diffusion processes consists of three main phases: (1) discovering an idea and turning it to invention, suggestion, and potential innovation, which is more or less an internal process in organizations, (2) finding the first happy customers for the idea to become innovation, and (3) finding many happy customers by diffusion (Mulej, et al., 2008). We will focus on phase 3 now. Success in diffusion is attained in les than five percent of innovation processes (Mulej, et al., 2008).

2. Implementation of continuous innovation

The framework model of implementation of a new idea as innovation includes vision, mission, policy, strategies, and tactics before operation and monitoring that feeds information back to previous phases for corrections to be undertaken (Cole, 2004; Mulej, et al., 2005; Potocan, 2006). We need also to consider that implementation of a strategy is at least as complex as making it.
In the case of innovation these phases have specific contents. They are presented in a logical sequential order, but in reality the process is not linear at all, but dialectical, i.e. full of interdependencies and interactions (Potocan, 2004; Mulej, et al., 2005; Potocan, 2006; Potocan & Mulej, 2007; Mulej, et al., 2008).

- Vision (e.g.) may be summarized as „survival on the basis of competitiveness by holistic creative work and cooperation for innovation aimed at a systemic quality in accord with (new) requirements of customers“.
- Education and training of all potential (co-)authors in both their professions and capacity of creative work and cooperation
- Mission (e.g.): „delight customers with an excellent systemic quality and attract them as permanent customers“, and related research of potential markets/supplies.
- Policy (e.g.): „implement innovative business as a source of a continuous systemic quality in all parts of the business process and all units“.
- Strategy towards implementation of such a policy may employ continuous self-assessment of one’s own quality.
- Tactics for implementation of such inventions-innovations strategy include e.g. an „organized critique to collect topics to work on, followed by teams and task forces that work on solving the selected problems“.
- Monitoring of outcomes in order to improve the process.
- Marketing/application of outcomes as innovations.
- Diffusion of innovations.

3. The diffusion viewpoint of making an innovation and market success

In the case of any product or service, its producers and representatives are in the role of change agents and have to do their best to make their product or service accepted

by its potential users. This means that they need a lot of capacity in communication, listening, gaining opinion leaders and their informal aids as facilitators of the persuasion process, etc. (Mulej, et al., 2008). See Fig. 1.

Legend: the darker the field, the bigger the need for change agents' impact

Viewpoints to be considered		Phases of users' decision making about a novelty				
		1 Awareness	2 Persuasion	3 Decision	4 Application	5 Reconfirmation
Novelty customers (potential)	Customers – innovators					
	Early customers					
	Early majority					
	Late majority					
	Laggards					
Opinion leaders						
Attributes of novelty	Relative advantage					
	Compatibility					
	Complexity					
	Testability					
	Visibility					
Communication channels	Public					
	Interpersonal					
Nature of the social system of customers						
Decision type about novelty	Optional					
	Group					
	Authority					
Consequences of novelty	Desired Undesired					
	Indirect Direct					
	Anticipated Unanticipated					

Figure 1. Matrix of Essential Attributes of Diffusion Process (A case)

In a competitive market, a supplier, unless totally unique, can hardly let customers wait for a new product or other invention; they are also hard to discover, demand must often, although not always, be created. This is done by persuasion and diffusion making both the authors and the potential customer know each other better.

Hence, the diffusion process addresses the system made of (Rogers, 1995; Christensen & Raynor, 2003; Gloor, 2006; Christensen, et al., 2008): 1) The novelty to be offered, 2) The communication process between the supplier/s and the potential customer/s, 3) Time for potential customer to decide for the novelty (or against it), and to do so in a big enough number for the supplier to succeed economically, and 4) The group of potential customers as a social system.

Every potential customer may be another story. The framework summarized here may need very particular elaboration for every potential market segment to come to be known well enough, mastered and even attracted on a long-term basis. Why?

- Change agents, with support from the opinion makers and their aids, may make the potential customers aware of the novelty and even persuade them, or not.
- The social structure, norms and roles of the change agents and opinion makers in their social system may support the novelty, or not.
- Whether or not the novelty will become an innovation, or even a diffused one, is up to its potential customers. They may find it suitable, or not.
- The individual properties and socio-economic statuses of customers may make them interested in the novelty a lot, a little, or hardly.
- A similar impact over the potential customers may be ascribed to communication channels.
- To some potential customers mass media may be sufficient, others may rather need interpersonal communication with their peers and friends who already have acquired the novelty because they trust them more than the advertisers.

The potential customers / adopters of an offered novelty may be different (from customers-innovators to laggards). One consequence of this fact is that they: 1) Are differently easy / hard to persuade, 2) Take a differently long time to make their decisions, 3) Need different approach methods of change agents, opinion makers and their aides, 4) Find different attributes of the product offered acceptable / promising / inviting / persuasive, etc.

The suppliers are interested in selling many copies of their product or service, and to do so with the least possible effort and cost. Hence, they are very interested in creation of a critical mass of customers adopting their supplies. Once the critical mass is attained, the new market develops a lot on its own, and the change agents may and can concentrate on other potential customers.

Too often the potential customers who are less open, rich, innovative risk takers are left aside. This means that the change agents do not change the habits of the potential customers who may need the novelty offered most of all, because they are lagging behind the development of others anyway. This situation is very frequent, and is called the law of the innovation paradox (Rogers, 1995; Lester & Piore, 2004).

That's why networks matter so much, be it between individuals or between organizations. It depends on the type of the novelty offered, whether or nor a centralised or a decentralised diffusion system works better. Even more: organizational attributes which are helpful in the phase of creation of awareness, interest, etc. concerning a potential innovation, may be harmful in the later phase of its practical implementation, and vice versa (Rogers, 1995; Lester & Piore, 2004; Gloor, 2006; Christensen, et al., 2008).

Consequences are the final essence of the story, and they are normally a synergy of desired and undesired, direct and indirect, foreseen and unforeseen outcomes. – The more holistically these and similar issues are worked out in the feasibility study,

business plan and marketing plan, the bigger may be the chances for the consequences to have less undesired, indirect, and unforeseen consequences.

4. Conclusion

No IIDP is finished, in economic terms, unless all chances are used up in the diffusion process. Without success in this step, quite probably authors and investors lose courage to repeat the entire invention-innovation process.
Hence, a very close co-operation between authors, investors, managers, entrepreneurs, and sales personnel and other change agents is crucial. Ethics of interdependence and knowledge of interdisciplinary creative cooperation are crucial.

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