NATIONAL RESEARCH UNIVERSITY HIGHER SCHOOL OF ECONOMICS

Why new products appear in unexpected places and what we can learn from it to spur product development

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Background

- There is a substantial stream of literature that has focused **on structural issues** (Burns and Stalker, 1961; Lawrence and Lorsch, 1967)**, success factors** (Cooper and Kleinschmidt, 1995; Montoya-Weiss and Calantone, 1994; Cooper & Kleinschmidt, 1987)**, and barriers** (Dougherty, 1992; Freel, 2000) **for firms to innovate** and in the process develop products
- **However,** not all of the early literature on this subject focused on firms – **inventors have also been the focus of consideration** (Schmookler, 1957)
- Studies on lead users and user communities (Von Hippel, 1976; Franke et al., 2006, Von Hippel, 2005) demonstrated that under certain conditions product **users may develop products that are more suitable to their personal needs**
- Further studies confirmed this idea, showing that **user-driven innovation can** give rise to new industries (Luthje et al., 2005; Hienerth, 2006) or **in case of lacking market mechanisms support 'on demand' production** in narrow segments (Hyysalo and Usenyuk, 2015)

Summary of previous studies

Source	Country	Year	Sample	Frequency, %
Von Hippel et al., 2012	UK	2009	N=1173,18+	6.1
De Jong, 2011	Holland	2010	N=533, 18+	6.2
Ogawa & Pongtanalert, 2011	USA	2010	N=1992, 18+	5.2
Ogawa & Pongtanalert, 2011	Japan	2011	N=200, 18+	3.7
Kuusisto et al., 2013	Finland	2012	N=99, 18-65	5.4
De Jong, 2013	Canada	2013	N=2021, 18+	5.6
Kim, 2015	Korea	2015	N=10821, 20+	1.9
Bengtsson, 2015	Sweden	2015	N=1002, 18-65	7.3
Fursov & Thurner, 2016	Russia	2014	N=1670, 16+	9.6

Emerging economies with more challenging environments and poorer policy framework conditions may stimulate self-developed technologies with considerable market potential (Hyysalo & Usenyuk, 2015; Fursov & Thurner, 2016)

Moreover

- Empirical evidence collected in Russia (Fursov & Thurner, 2016) suggests the existence of **two different groups of user-innovators**:
  1) **urban, well educated, male, financially better-situated** individuals who innovate for career reasons or for fun (confirms previous findings)
  2) much more **diverse group of small town folks** who innovate out of a necessity (seems to be a fairly unique specificity of developing markets)
- Almost **50% of the user innovators are engaged in knowledge-sharing** activities, still **only 0.5% try to commercialise their ideas**
- Russia's **user-innovators are driven by egocentric** (hedonic or personal development) **and altruistic** (help others or fun, interest) motives **rather than by pragmatically-oriented** (career opportunities or commercialisation) ones

Research question

Why new product development occurs in the absence of clear economic benefit?

- if direct economic benefit does not always drive new product development what does?
- what different options are there for encouraging and enabling the development of relevant and desirable new products?

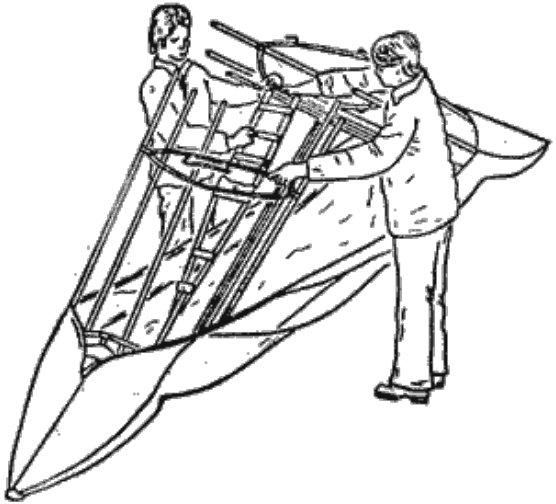
Towards a new understanding of enabling new product development

To better understand **why new product development occurs in the absence of clear economic benefit**, four case studies are considered:

- Innovation in consumer products in a non-capitalist economy (Russia)
- Innovation in services in historically non-innovating economies (Africa)
- Global open source software development (Globally)
- Development of low-cost customized physical products at open market (Globally)

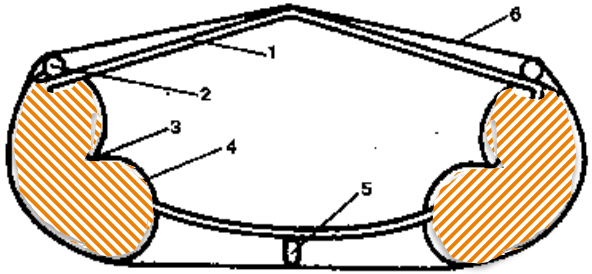
Soviet Union: innovation in sporting goods

Original solid-frame boat (1970-s)



Too heavy and not stable on rough waters

New design of a cross-section of inflatable bladder (since 1977)



Credits: http://www.equipme.ru/info/66.html
http://www.skitalets.ru/books/samodsnar/bayda.htm
A. Larkina, Moscow (personal archives)

Soviet Union: a community success?

Situation: a lack of product innovation for consumer and leisure goods

Motivation: non-economic (winning competitions, exercising creative skills, gaining standing in a community, and having higher levels of security while participating in races)

Enabling technology: teams at universities and factories always had members with design and engineering skills as well as almost unlimited access to materials and equipment

Infrastructure: clubs and regular competitive events made racing communities close knit, competitions were quite friendly, so ideas and designs were easily shared; moreover, each boat had to be built through barter, borrowing of materials or access to the equipment

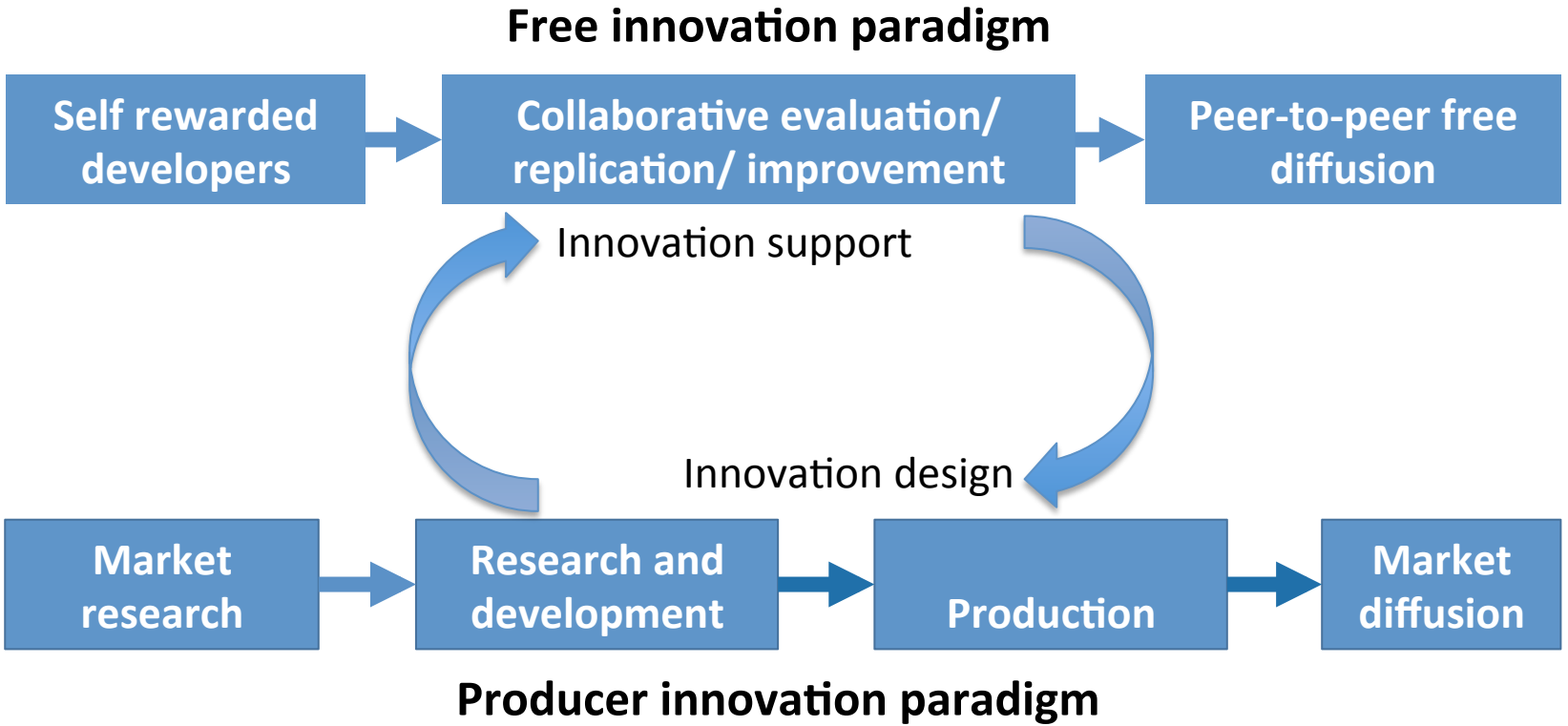
Product: different designs evolved quickly as each boat was custom-made so changes incurred no extra cost; innovations gave the designer, manufacturer or owner satisfaction

Some of the community redesigned solutions have not reached the market… yet?

The Bublik (Bubble) Boat shown on exceedingly rough waters
(initially designed in 1986)

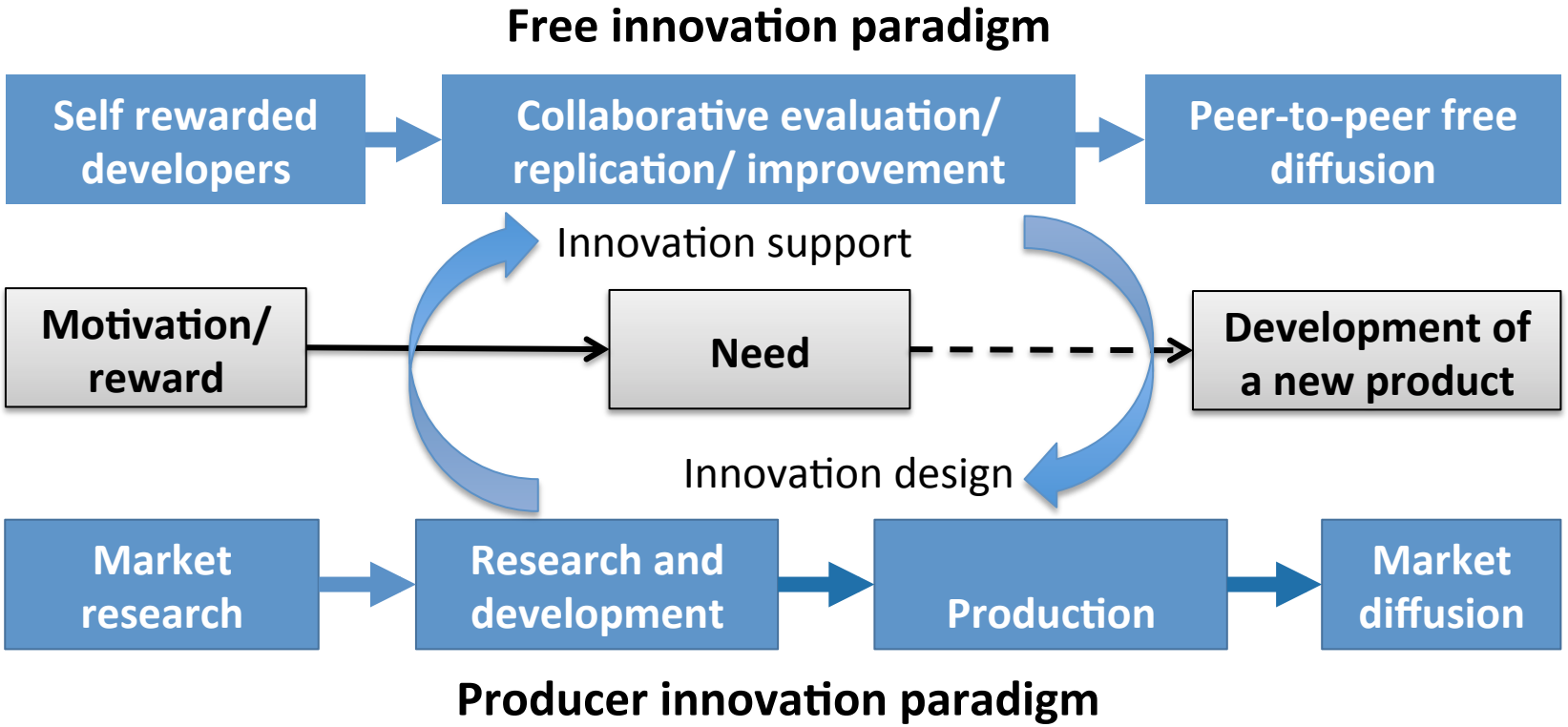
Credit: I. Ponomaryov, Moscow
(from the Archives of touristic club *Novyi Brodyaga*)

User innovation model

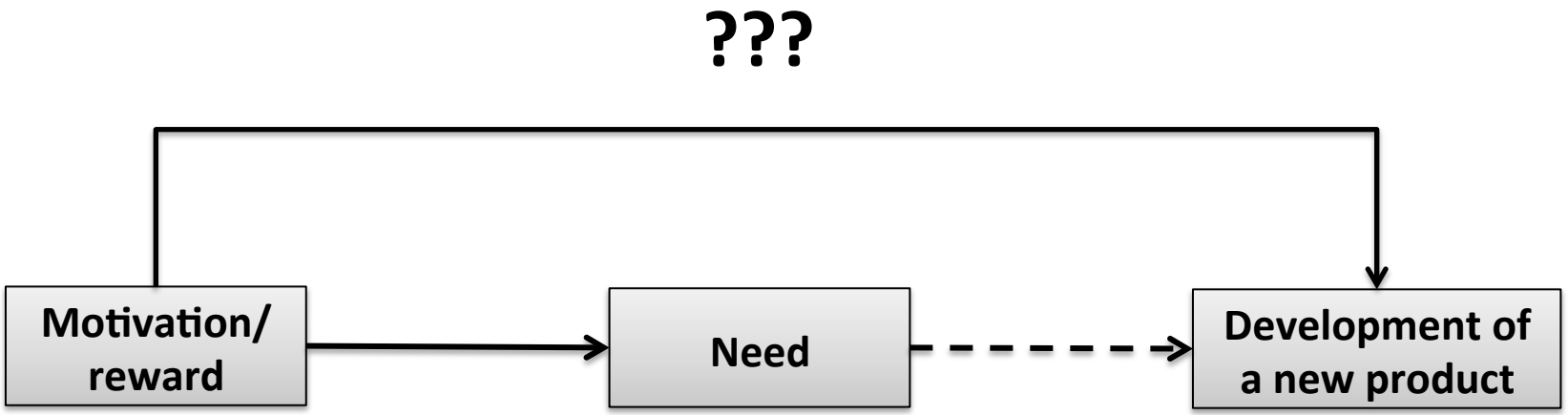


Source: (von Hippel, 2017)

User innovation model



Towards a community benefit model



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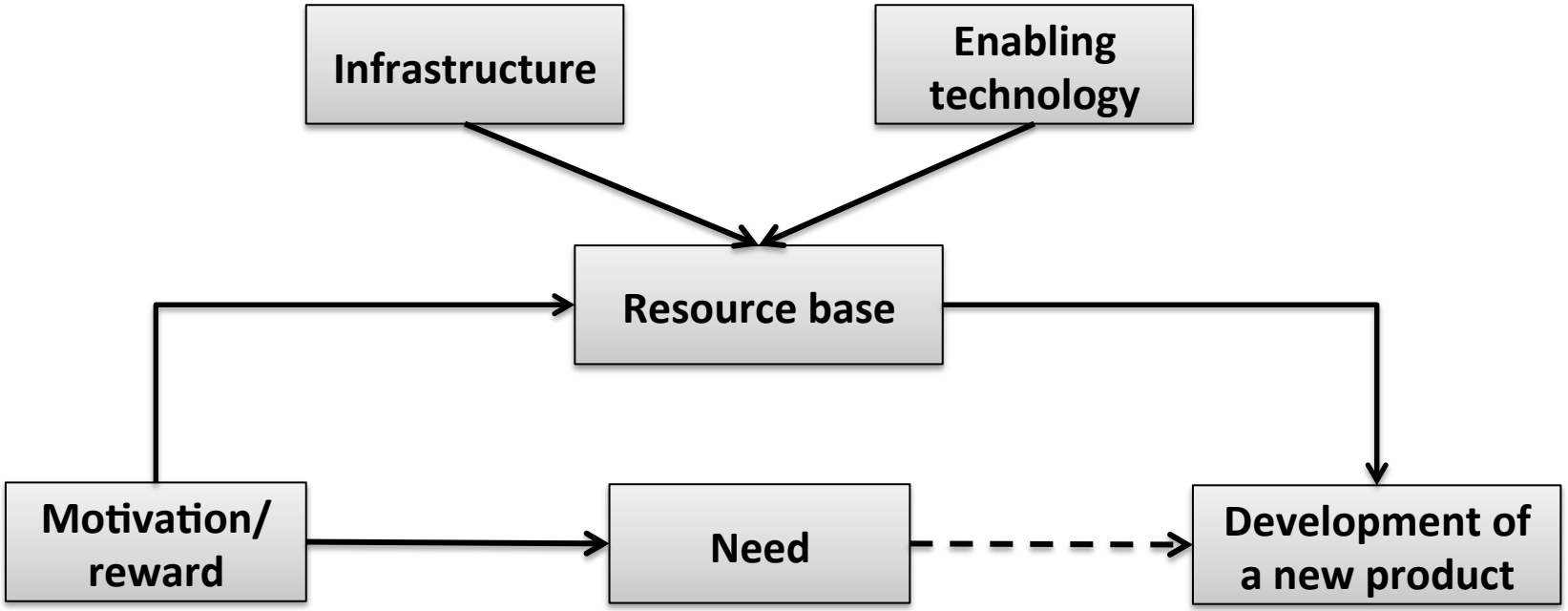

Other examples

Case	Characteristics	Motivation/ Reward	Infrastructure	Enabling Technology	Need
SPROXIL® 	ICT Based Infratructure poor Non-innovating economy	Reduction of fraudulent products Profit – business model can be found (if appropriate)	Mobile Telephone Network	Programming skills	Security/ Safety
Apache  Linux 	ICT based Open source Capitalist economy	Access to useful customized software Demonstrate one's skill within a community	Internet Kernel	Programming skills	Belongingness/ Social
	Physical good ICT enabled Open source	Help disabled people	Internet 3D Printers	Design skills Programming skills	Esteem

Implications

- Cooperation within a community to obtain non-financial social benefit through invitation and direction of underutilized skills for productive purposes as a hobby or form of entertainment (hacking)
- Identification and mobilization of pools of underutilized skills that can be drawn upon to create economic or social benefit
- Filling the gaps through the development of programs or modification of regulations to develop skills required for use available infrastructures
- Scanning the environment to determine what sorts of investments and policies will result in the addition of Infrastructure or Enabling Technologies to support the development of new and beneficial product

Thank you for your attention!

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