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CATEGORIZATION OF CONSUMERS BASED ON THE INFORMATION TECHNOLOGY ACCEPTANCE RATE

1. Introduction

The marketing of technology-based products and services is by and large being guided by traditional principles that may not be as effective for high-tech offerings as they are for their low-tech counterparts. And it appears that conventional techniques for marketing technology products fail. The primary reason is inadequate understanding of customers' attitudes toward technology and important variations of in those attitudes across different customer segments. Companies relying solely on conventional approaches to market technology-based offerings can fall prey to costly pitfalls.

Do the marketers know what customers really think about the new technology? There is a virtual vacuum of sound, research-based guidelines for effectively marketing innovations and leveraging technology to strengthen relationships with customers.

This article introduces the concepts of IT Marketing (information technology marketing) and IT Acceptance Rate among consumers. This area has not been sufficiently explored yet, and, indeed, there are very few works on the subject of "technology readiness" in marketing.

2. Information Technology Marketing

We introduce the term IT Marketing to capture the concepts critical for successfully marketing innovative products and services that are technology -intensive. It is the process of creating and developing markets by deploying innovative technologies. In other words, it is the science and practice of marketing products and services that are innovative and technology-intensive.

Examples of technology innovations today include e-commerce (selling on the Internet) and genetically enhanced food crops. In most cases, technology-driven

innovations remove a certain degree of human input from the creation and delivery of product or service. Well known cases include the introduction of the automated teller machine (ATM) replacing a bank teller, and a typewriter replacing a scribble.

The uniqueness of IT Marketing can be characterized by four core principles about technology markets. These are much the same principles as those introduced by A. Parasuraman and C.L. Colby [2001], referring to so called "techno -readiness":

1. Technology adaptation is a distinct process.
2. Technology innovations require different marketing strategies.
3. Ensuring customer satisfaction is a more weighty challenge for a technology-based product or service.
4. Technology markets are governed by a law of critical mass, often resulting in a "winner takes all" outcome.

To elaborate on those principles we can point to the following issues. The customer behavior for a technology-based product differs from a more conventional one. In such a case a whole set of special consumer beliefs comes into play (e.g. optimism or discomfort with IT).

Because the adoption process is different when IT is involved, so must be the approach to product design, pricing, communication, distribution, and service. For example, a computer maker would do well to initially aim its advertising more selectively at early adopters who are more confident about using technology.

Customers of technology-based offerings require education and support.

Last, but not least, in a IT-driven market, it is not uncommon for a single company to achieve a dominant position that, once achieved, is impossible to challenge until a whole new technology comes along. This occurs as a result of economies of scale in production, ownership of a standard, or interconnectivity. Examples include:

- Ford Motor Company with its mass production of Model T,
- Microsoft with its standardized Windows operating system,
- At&T with its telecommunications network, which remained a monopoly until the 1980s.

It is easy to notice that each principle about IT markets corresponds to a marketing practice. Since technology adaptation is a distinct process (Principle 1), marketers have to understand techno-ready consumer behavior. Technology innovations require different marketing strategies (Principle 2), so they have to adapt a proper strategy. Ensuring customer satisfaction is a more weighty challenge for a technology-based product or service (Principle 3), so the main task is to satisfy and support IT consumers. Finally, technology markets are governed by a law of critical mass, so it is necessary to achieve critical mass.

One of the best examples of mastering those four principles is the growth of America Online. The company applied aggressive mass marketing, attractive pricing, and established chat rooms, which were frequently visited. Above all,

however, they offered ease of use, which was probably the benefit that allowed the company to accumulate subscribers at an explosive pace. The service was easy to install. AOL aggressively seeded the market with free start-up disks. Subscribers needed to do no more than pop such a disk in their computers and enter a credit card number. The service was also very easy to operate, relying on a neatly organized screen to help the user navigate through the range of information options. It also made online communication a simple and joyful process. In the end, AOL was able to achieve critical mass – the market share, as of 2000, was 35% in a highly fragmented consumer market.

3. Consumers' Acceptance of Information Technology

Another new concept – IT Acceptance Rate – represents an amalgam of feelings, hopes, fears, and frustrations about technology, and this construct captures people's overall propensity to embrace and use new technologies for accomplishing goals in home life and at work. It is much more a mental state than a measure of technical competency.

Thus, IT Acceptance Rate describes the distinctive behavioral process behind the adoption of technology-based products and services. The first principle of successful IT Acceptance Rate: the customer beliefs and behaviors correspond to a different model when cutting-edge technology is involved. This rate:

- varies from one individual to the next,
- is multifaceted,
- predicts and explains consumer response to new technologies.

Further analysis of this new concept can be based on the experiences gained by The National Technology Readiness Survey (NTRS). NTRS is a nationwide survey of American adults (18 years of age or older). The primary purpose of the NTRS is to provide an in-depth view of consumer beliefs about new technologies. In addition to offering comprehensive information about people's technology beliefs, the NTRS also examines:

- Consumers' technology vision,
- Employees' technology vision,
- Usage of technology-based products and services,
- Impact of the Internet on behavior,
- Cellular phone usage,
- Desired methods of tech support,
- Association between people's technology beliefs and their demographics and lifestyles

According this survey (NTRS, 1999):

- Most e-commerce activities consists of purchases under $100.
- Consumers show a great reluctance to purchase large items, such as cars or furniture (only 14% consider this desirable), and are concerned with making major financial commitments, such as home mortgage, over the Internet.

- There is a huge gap in activity based on the level of IT Acceptance of the online consumer.
- 63% of consumer like the idea of doing business via computers.
- 58% believe technology gives them more control over their daily lives.
- 90% are skeptical of displacing people in a transaction, they think the "human touch" is important when doing business with a company.
- 64% believe the benefits of new technology are often "grossly overstated" (e.g., using technology for new areas like e-commerce).
- The greatest obstacle to e-commerce today is related to perceived security: 77% of consumers do not consider it safe giving out a credit card number over a computer, 67% do not feel confident doing business with a place that can only be reached online.

4. Multiple Facets of the IT Acceptance Rate

It is generally known that people can simultaneously harbor favorable and unfavorable beliefs about technology. Some "paradoxes" of IT with which con -sumers have to cope include: control/chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfills/creates needs, assimilation/isolation, engaging/disengaging.

People are likely to vary regarding the relative dominance of the two types of feelings (positive and negative). We can array people along a "technology-beliefs continuum", anchored by "receptive" at one end and "resistant" at the other. Moreover, people's positions on this continuum can be expected to reflect their IT Acceptance Rate.

The various technology beliefs can be categorized into four distinct components, two "contributors" – *optimism* and *innovativeness*, and two "inhibitors" – *discomfort* and *insecurity*.

Optimism is a positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives. As could be expected, technology optimists abound in the United States. According to NTRS [*The National...* 2005]:

- 74% of the people surveyed believe that IT gives them more freedom of mobility,
- 72% find new technologies to be mentally stimulating,
- 71% believe IT makes them more efficient on the job,
- 66% believe that products and services with the newest technologies are more convenient to use.

Technology optimism varies somewhat by age. Older adults (65 or older) tend to be less positive and they are far more likely to believe the benefits of technology are grossly overstated.

Innovativeness refers to a tendency to be a technology pioneer and thought leader. In the USA:

- 87% believe that they are always open to learning about new and different technologies,
- 85% believe that learning about technology can be as rewarding as the technology itself,
- 64% keep up with the latest technological developments in the areas that interest them,
- 63% enjoy the challenge of figuring out high-tech gadgets.

Discomfort pertains to a perceived lack of control over technology and a feeling of being overwhelmed by it. Sometimes people think that technology systems are not designed for use by ordinary people. According to the same poll:

- 61% get overwhelmed by how much they need to know to use the latest technology,
- 45% believe technology is often too complicated to be useful,
- 53% believe that tech support sometimes makes them feel as if they are being taken advantage of,
- 53% think there is no such thing as a manual for a high-tech product or service that is written in plain language.

Those beliefs are somewhat more prevalent among females and older consumers.

Insecurity can be defined as a distrust of technology and skepticism about its ability to work properly. It focuses on specific aspects of technology-based transactions rather than on a lack of comfort with technology in general. The American public as a whole experiences a great deal of technology-related anxiety:

- 87% believe that any business transaction conducted electronically should be confirmed in writing,
- 79% worry that information they send over the internet will be seen by other people,
- 82% believe that when something gets automated, one must check carefully to see if the machine or computer is making mistakes,
- 78% believe that switching to a revolutionary technology too quickly can be risky,
- 62% say that technology always seems to fail at the worst possible time.

The views pertaining to insecurity by and large vary little across gender and age groups.

5. Categories of Information Technology Consumers

The research shows [Parasuraman, Colby 2001] that the market can be segmented into five distinct groups with different combinations of innovativeness, optimism, discomfort, and insecurity:

- **Explorers** are highly motivated and fearless (16% of the adult population in the United States),
- **Pioneers** desire the benefits of the new technology but are more practical about the difficulties and dangers (27%),
- **Skeptics** need to be convinced of the benefits of the new technology (21%),
- **Paranoid** are convinced of the fruits but unusually concerned about the risks (20%),
- **Laggards** may never accept the new IT unless they are forced to do so (14%).

Table 1. Differing beliefs of technology adoption segments

	Drivers		**Inhibitors**	
	Optimism	**Innovativeness**	**Discomfort**	**Insecurity**
Explorers	high	high	low	low
Pioneers	high	high	high	high
Skeptics	low	low	low	low
Paranoids	high	low	high	high
Laggards	low	low	high	high

Source: based on [Parasuraman, Colby 2001; Unold 2001].

Each segment enters an IT market at different phases. Table 2 presents the dominant segments at different stages of market maturity, the prevailing theme in the market, and broad strategies for success.

Table 2. The shifting focus of a IT-based product and services

Stage of development	Early adoption	Accelerating growth	Peak growth		Declining growth
Dominant segment	***Explorer***	***Pioneer***	***Skeptic***	***Paranoid***	***Laggard***
Market themes	Innovation	Discomfort and insecurity	Low optimism	Discomfort and insecurity	Market maturity and resistance by "hold-outs"
Strategy	Target innovators, Make products future-ready, and build a market base	Focus on usability and reassurance	Promote product benefits	Increase focus on usability and reassurance	Focus on retention and innovations

Source: based on [Parasuraman, Colby 2001].

6. Conclusions

People's propensity to embrace modern IT varies widely, resulting from an interplay between contributors (optimism, innovativeness) and inhibitors (discomfort, insecurity) of IT acceptance.

The results cited in this article show only modest associations among the multiple facets of IT Acceptance. These four facets (optimism, innovativeness, discomfort and insecurity) are fairly independent, with each making a unique contribution to overall technology readiness (see also: [Parasuraman 2000]). It is consistent with the previously introduced notion that individuals may simultaneously harbor positive and negative beliefs about technology.

The next step in the outlined concept will be an introduction of an IT Acceptance scale which will serve as our tool for studying consumer behaviors for technology. As such, this scale (index) will serve as a supplementary screening device, along with traditional people-skills assessments, in selecting personnel for tech-support positions. This should be an example of a reliable multiple-item scale that companies can use to gain an in-depth understanding of the technology readiness of their customers as well as their employees.

References

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KATEGORYZACJA KONSUMENTÓW NA PODSTAWIE STOPNIA AKCEPTACJI TECHNOLOGII INFORMACYJNYCH

Streszczenie

Artykuł omawia nowe pojęcie stopnia akceptacji technologii informacyjnych przez konsumentów. Koncepcje te wydają się niezbędne dla skutecznego marketingu produktów i usług technologicznych. Zdolność konsumentów do akceptowania nowoczesnych technologii informacyjnych jest bardzo zróżnicowana i waha się od optymizmu i innowacyjności po brak poczucia komfortu i bezpieczeństwa. Co więcej, jednostki mogą jednocześnie żywić zarówno pozytywne, jak i negatywne przekonania odnośnie technologii.

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