Prosumption: Utilization of Consumer Knowledge in Enterprises

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Research project

“Information technology and information systems for transforming business and public administration”

2014-2017
Agenda

- Definition, nature, examples of prosumption
- Proposed holistic approach to prosumption
- Research methodology for creating a model of using prosumers’ knowledge in enterprises
- Proposed model of using prosumers’ knowledge in enterprises
- Conclusions, implications, limitations, future works
Introduction

**turbulent environment, flexibility, uniqueness, innovation, creativity, adaptation, collaboration, trust, net generation, virtualization, organizational learning, knowledge organization, knowledge management, wikinomics**

**innovative products, innovative processes, new projects, new markets, new distribution channels**

**knowledge sharing**
... introduction

- 7R principle, i.e. right product, right quantity, right condition, right place, right time, right consumer, right price
- better educated, more sophisticated, inquisitive, critical and creative
- freedom, openness, innovativeness, mobility, partnership and cooperation

no passive consumers
self-design
self-reconfiguration
self-production
self-distribution
Nature of prosumption

knowledge, creativity, innovativeness

utilize

consumers share knowledge with enterprises and enterprises use this knowledge to produce things of value

“prosumption” “co-creation” “co-production”

blur the traditional roles of producers and consumers
Toffler’s definition and nature of prosumption

1980 “external enterprise employees”

- Prosumption – selected activities, previously performed by enterprise’s employees, being performed by consumers in accordance with the do-it-yourself principle – consumers become creators of products and services

Contemporary society integrates PROduction and conSUMPTION
...Toffler’s definition and nature of prosumption

Consumers fill trolleys and baskets with products themselves.

Consumers fill car tanks with fuel themselves.

Consumers on their own, using manuals, assemble furniture from parts.

Consumers on their own, open bank accounts, make payments.

Welcome to 24-hour Online Account Opening!
Available anywhere, anytime, day or night.
Tapscott’s and Williams’s research on prosumption

- Prosumers – (producers-consumers) are consumers who change/improve/combine products – consumers become producers

Prosumption as a business model and source of innovation

„Customers get more of what they want, and companies get free R&D“
Prahalad’s and Ramaswamy’s research on prosumption

- **Traditional system** – firms decide the products and services are designed, produced and distributed, by implication they decide what is of value to consumers

- **Contemporary system** – consumers actively participate in designing, producing and distributing products and services, by implication they decide what is of value to them

The evolving role of consumers from passive recipients to active co-creators of value

Co-creation requires new managerial attitudes, processes and products which allow value creation to be located in the consumer-company interactions and not just in the company itself
Gibbert’s, Leibold’s, and Probst’s research on prosumption

- **axiom** – “if only we knew what our costumers know”
- **source of knowledge** – costumers
- **rationale** – gaining knowledge directly from costumers
- **objectives** – collaboration with costumers for co-creation, co-design, co-production, co-promotion, co-pricing, co-distribution, co-consumption, co-maintenance

Customer Knowledge Management – the management of knowledge from customers, i.e. knowledge resident in customers
... Gibbert’s, Leibold’s, and Probst’s research on prosumption

- **benefits** – costumers meet their needs, enterprises have a new source of knowledge
- **role of costumer** – active partner in co-creation
- **role of enterprise** – emancipate consumers from being passive recipients of products to active co-producers and co-creators; create proper conditions for costumers’ participation in co-creating

*Customer Knowledge Management – the management of knowledge from customers, i.e. knowledge resident in customers*
Ritzer’s and Jurgenson’s research on prosumption

- **Prosumption** involves both production and consumption rather than focusing on either production or consumption

While prosumption has always been preeminent, a series of recent social changes, especially those associated with the internet and Web 2.0 (briefly, the user-generated web, e.g. Facebook, YouTube, Twitter), have given it even greater centrality.

*Journal of Consumer Culture*
March 2010, 10, 13-36

**ARTICLE**
Production, Consumption, Prosumption
The nature of capitalism in the age of the digital ‘prosumer’
GEORGE RITZER AND NATHAN JURGENSON
University of Maryland, USA
Toffler’s and contemporary prosumption

<table>
<thead>
<tr>
<th>Toffler’s approach</th>
<th>Contemporary approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prosumers’ role</strong></td>
<td><strong>Enterprises’ role</strong></td>
</tr>
</tbody>
</table>
| Less complex tasks, previously carried out by enterprises’ employees, are performed by prosumers | • Sharing knowledge and experience with enterprises  
• Participating in enterprise business processes  

**Prosumers’ knowledge**

Tasks performed by prosumers were tightly connected with their manual skills | Prosumers’ knowledge is a source of innovative, creative business solutions, and processes improvement

**Prosumers’ relationships with enterprises**

Static, based on taking over of less important tasks from employees and performing them themselves | Active, based on collaboration, co-participation, co-design, co-creation

**Prosumers’ communication with enterprises**

One-way, most often indirect | Two-way, multi-channel, easy and direct

1980 has been evolving now
Definition of prosumption

**Prosumption**

enterprises competing by incorporating consumers into knowledge sharing processes, improving business processes and creating business value, along with satisfying the consumers’ needs and increasing value for them
Examples of prosumption

- **Second Life** – a game platform created by consumers

- **Fluevog Shoes** – shoe designs come from consumers communities

- **Nike** – consumers design sport shoes themselves
... examples of prosumption

- **BMW** – consumers are engaged to the car software production

- **Apple** – iPod modifications created by consumers

- **Linux** – operating system created by community groups
Prosumption – a holistic approach

How should enterprises implement prosumption?
Business and organizational assumptions and recommendations

Business goals and strategy concentrated on

- building competitive advantage through: co-learning, co-exploration of knowledge, co-creation of innovation, co-creation of added value
- incorporating consumers into the knowledge sharing processes, innovation and value creation processes
- satisfying the consumers needs and increasing consumers value
... business and organizational assumptions and recommendations

- Consumers are becoming business partners of enterprises
- Consumers are becoming external employees, who actively participate in designing, production and distribution of products
- Consumers' knowledge allows for an effective and efficient cooperation with consumers in order to create organizational value and innovation creation
... business and organizational assumptions and recommendations

- Consumers’ knowledge is a strategic advantage

- becomes an essential intangible asset for most business sectors
- leads to a better response to and respect toward consumers
- makes a contribution toward new and innovative products
- strengthens bonds between enterprises and prosumers
- contributes to the improvement of business processes and value
... business and organizational assumptions and recommendations

- **Consumer knowledge management** particularly useful for

- **answering the questions:** how to share consumers’ knowledge? how to acquire and create new consumers’ knowledge? how to collect and convert consumers’ knowledge? how to apply consumers’ knowledge?

- **solving the axioms:** "if only we knew what our consumers need" and "if only we knew what our consumers know"
... business and organizational assumptions and recommendations

- foster sharing knowledge and collaboration between consumers and enterprises
- develop and implement partnership, trust, responsibility and dialogue in consumers–enterprise relations
Technological assumptions and recommendations

- **consumer knowledge management**, especially knowledge sharing, knowledge “about consumers”, “for consumers”, “from consumers”

- **collaboration between consumers and enterprises** for co-creation, co-design, co-production, co-promotion, co-pricing, co-distribution, co-consumption, co-maintenance
Research gap

- What are the incentives encouraging prosumers to knowledge sharing with enterprises?
- What are the ways of prosumers’ knowledge sharing with enterprises?
- What are the business processes in which prosumers' knowledge can be used?
- What are the ICTs which can support prosumers’ knowledge sharing?

Our recent research focused on prosumers’ knowledge sharing with enterprises
Research aims

Identification and exploration of
- incentives encouraging prosumers to knowledge sharing
- ways of prosumers’ knowledge sharing
- business processes in which prosumers’ knowledge can be used
- ICTs supporting prosumers’ knowledge sharing
Research methodology

1. Literature review
2. On-line observation
3. Elaborating questionnaire
4. Conducting pilot survey
5. Collecting data
6. Statistical analysis

Conducting pilot survey
Research methodology

Identifying incentives encouraging prosumers to knowledge sharing, ways of prosumers’ knowledge sharing, ICTs supporting prosumers’ knowledge sharing, and business processes supported by prosumers’ knowledge

1. Literature review

- **Bibliographic databases:** Ebsco, ProQuest, Emerald Management Plus, ISI Web of Knowledge, and Scopus
- **Open access** papers and empirical studies
- **Keywords and phrases:** ‘prosumption’, ‘prosumer’, ‘knowledge sharing’, ‘incentives’, ‘business processes’, ‘ICT’
... research methodology

2. On-line observation

Identifying incentives encouraging prosumers to knowledge sharing, ways of prosumers’ knowledge sharing, ICTs supporting prosumers’ knowledge sharing, and business processes supported by prosumers’ knowledge.

Above 100 case studies

Designing a concept for a film script of television series

Designing shoes in "Shoes of Prey" shop

Improvement and development of computer game

Participation in promotional campaigns
... research methodology

3. Elaborating questionnaire  

Working out the survey questionnaire on prosumers’ knowledge sharing with enterprises

- **Questions** – different kind of prosumers’ activities, incentives and ICTs used and expected to be used by prosumers to knowledge sharing, and obstacles to prosumers’ knowledge sharing

- **Five-point Likert scale**: 1 – definitely not (never), 2 – probably not, 3 – neither yes nor not, 4 – probably yes, and 5 – definitely yes (many times)

- **CAWI** (Computer-Assisted Web Interview) – **Ankietka.pl**
4. Conducting pilot survey

- **Reliability analysis**: Cronbach’s coefficient alpha (0.881 – the high reliability of the scale)
- **Data analysis**: min, max, mean, median, standard deviation, and coefficient of variation
Collecting data from respondents

- December 2014 – March 2015
- Usable, correct and complete responses – 783 respondents (response rate – 24.44%)
- The data was stored in Microsoft Excel format
### Demographic profile of research sample

<table>
<thead>
<tr>
<th>Demographic profile of research sample</th>
<th>Number of respondents</th>
<th>Percentage of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>599</td>
<td>76.5%</td>
</tr>
<tr>
<td>Male</td>
<td>184</td>
<td>23.5%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Builders generation – over 65 years old</td>
<td>14</td>
<td>1.8%</td>
</tr>
<tr>
<td>Baby-Boomers generation – 51–65 years old</td>
<td>35</td>
<td>4.5%</td>
</tr>
<tr>
<td>X generation – 36–50 years old</td>
<td>108</td>
<td>13.8%</td>
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<tr>
<td>Y generation – 21–35 years old</td>
<td>369</td>
<td>47.1%</td>
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<tr>
<td>Z generation – less than 21 years old</td>
<td>257</td>
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<td><strong>Level of education</strong></td>
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<td>higher education</td>
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<tr>
<td>secondary education</td>
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<td>less than secondary education</td>
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<td><strong>Place of residence</strong></td>
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<td>city with a population of more than 100.000</td>
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<td>53.5%</td>
</tr>
<tr>
<td>city with a population of less than 100.000</td>
<td>244</td>
<td>31.2%</td>
</tr>
<tr>
<td>rural area</td>
<td>120</td>
<td>15.3%</td>
</tr>
</tbody>
</table>
... research methodology

6. Statistical analysis

Identifying incentives encouraging prosumers to knowledge sharing, ways of prosumers’ knowledge sharing, ICTs supporting prosumers’ knowledge sharing, and business processes in which prosumers’ knowledge can be used

- **Reliability analysis**: Cronbach’s coefficient alpha
- **Data analysis**: min, max, mean(\(\bar{x}\)), median (Med), standard deviation(SD), and coefficient of variation(CV)
- **Evaluation of the normality assumption**: Kolmogorov-Smirnov test
- **Examination of differences in the incentives, ICTs, business processes**: Pearson's Chi-square test, t-test, analysis of variance (ANOVA)
- **Statistica, SPSS, Microsoft Excel**
Model of using prosumers' knowledge in enterprises

1. TYPES OF KNOWLEDGE
   - Knowledge for prosumers

2. ATTITUDES TO KNOWLEDGE SHARING
   - conditional willingness
   - unconditional willingness
   - unwillingness

3. INCENTIVES ENCOURAGING TO KNOWLEDGE SHARING
   - tangible incentives
   - activity incentives
   - social incentives
   - tool-related incentives
   - promotion-related incentives

4. ICTs SUPPORTING KNOWLEDGE SHARING
   - e-mail, Internet forum, enterprise’s websites, popular information websites, specialized websites, mobile applications, Internet applications provided by enterprise, file sharing portals, Facebook, crowdsourcing portals, business blogs, private blogs, online surveys

5. WAYS OF KNOWLEDGE SHARING
   - scoring
   - commenting
   - testing
   - improvement
   - designing
   - ICTs

6. BUSINESS PROCESSES
   - Process 1.0
   - Process 2.0
   - Process 3.0
   - Process 4.0
   - Process 5.0
Model of using prosumers' knowledge in enterprises

**BUSINESS PROCESSES**
- Process 2.0
- Process 3.0
- Process 4.0
- Process 5.0

**1. TYPES OF KNOWLEDGE SHARING**
- Knowledge for prosumers
  - Knowledge about prosumers
  - Knowledge from prosumers

**WAYS OF KNOWLEDGE SHARING**
- scoring
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e-mail, Internet forum, enterprise’s websites, popular information websites, specialized websites, mobile applications, Internet applications provided by enterprise, file sharing portals, Facebook, crowdsourcing portals, business blogs, private blogs, online surveys

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**INCENTIVES ENCOURAGING TO KNOWLEDGE SHARING**
- tangible incentives
- activity incentives
- social incentives
- tool-related incentives
- promotion-related incentives

**PROCESS**
- Process 1.0

**KNOWLEDGE**
- Process 2.0
- Process 3.0
- Process 4.0
- Process 5.0
Types of prosumers’ knowledge

- **Prosumers knowledge** – important asset for business
- **Prosumers knowledge** – important contributor in improving business value
- **Prosumers knowledge** – important contributor in enhancing business performance

- **Knowledge about prosumers** – knowledge about prosumers’ needs and requirements, prosumers’ behavior and previous purchasing patterns, prosumers’ demographics, understanding of prosumers’ purchase motivation, adjust and personalize products and services
... types of prosumers’ knowledge

- **Knowledge for prosumers** – knowledge about enterprises, products and services

- **Knowledge from prosumers** – prosumers’ ideas, thoughts, reviews, opinions, discussions, advice and rankings

  - supporting prosumers in their buying cycle, impacting on prosumers’ perception of enterprises and offers, and becoming the base of knowledge from prosumers

  - enhancing enterprises’ products and services
Model of using prosumers' knowledge in enterprises

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   - Knowledge about prosumers
   - Knowledge from prosumers

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   - promotion-related incentives

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   - unconditional willingness
   - unwillingness
Attitudes to knowledge sharing

- **Conditional willingness** – prosumers are willing to share knowledge, but only under the condition of obtaining certain benefits.

- **Unconditional willingness (eagerness)** – prosumers have an internal drive to share knowledge and share knowledge without reciprocity and do not expect any tangible benefits from that.

  Creating a system of incentives and delivering various tangible and intangible incentives to prosumers.

  Creating a system of intangible incentives and delivering various intangible incentives to prosumers.
... attitudes to knowledge sharing

- Unwillingness – prosumers are not willing to share knowledge

creating a system of incentives and delivering various tangible and intangible incentives to prosumers
... attitudes to knowledge sharing

Prosumers need incentives encouraging them to knowledge sharing with enterprises – with regard to gender

Females are a little bit more willing to share knowledge without any incentives than males
... attitudes to knowledge sharing

The elder generations are more willing to share knowledge without any incentives than the younger generations.

Prosumers need incentives encouraging them to knowledge sharing with enterprises – with regard to age.

The elder generations are more willing to share knowledge without any incentives than the younger generations.
Model of using prosumers' knowledge in enterprises

- **Types of Knowledge Sharing**
  - Knowledge for prosumers
  - Knowledge about prosumers
  - Knowledge from prosumers

- **Ways of Knowledge Sharing**
  - Scoring
  - Commenting
  - Testing
  - Improvement
  - Designing

- **ICTs**

- **Business Processes**
  - Process 1.0
  - Process 2.0
  - Process 3.0
  - Process 4.0
  - Process 5.0

- **Attitudes to Knowledge Sharing**
  - Conditional willingness
  - Unconditional willingness
  - Unwillingness

- **Incentives Encouraging to Knowledge Sharing**
  - Tangible incentives
  - Activity incentives
  - Social incentives
  - Tool-related incentives
  - Promotion-related incentives

- **ICTs Supporting Knowledge Sharing**
  - E-mail
  - Internet forum
  - Enterprise’s websites
  - Popular information websites
  - Specialized websites
  - Mobile applications
  - Internet applications provided by enterprise
  - File sharing portals
  - Facebook
  - Crowdsourcing portals
  - Business blogs
  - Private blogs
  - Online surveys
Incentives encouraging to knowledge sharing

**Tangible incentives** – direct and indirect financial incentives

- monetary rewards
- gifts, coupons, sweepstakes
- free usage (testing) of prototypes
- free samples of products
- low transaction costs
- bonus points with financial value

**Intangible incentives** – non-financial incentives

- activity incentives
- social incentives
- tool-related incentives
- promotion-related incentives
... incentives encouraging to knowledge sharing

- **Activity incentives** – provide opportunities to collaborate with enterprises and co-create things of value by performing more new, innovative and challenging tasks
  - participating in interesting initiatives
  - adjustment of products/services to own needs
  - enhancement of satisfaction with enterprises and their products/services
  - collaboration with well-known enterprises
  - improvement of the products/services quality

- **Social incentives** – allow prosumers to identify themselves with various communities and build their reputation and status
  - collaboration with people who share passions, knowledge, and experience
  - building peer recognition, status, reputation
  - strengthening social ties with enterprises and their customers
... incentives encouraging to knowledge sharing

- **Tool-related incentives** – refer to ICTs, especially tools for online communities, which encourage prosumers to integrate with enterprises’ communities

  - utilization of innovative and interesting ICTs
  - invitation by e-mail
  - invitation by Facebook
  - interesting blog
  - interesting video on YouTube
  - online game

- **Promotion-related incentives** – relate to promotional activities of enterprises encouraging prosumers to knowledge sharing and co-creating promotional materials and campaigns

  - co-creating promotional materials
  - promotional or advertising campaign on various media
  - promotional information found accidentally
... incentives encouraging to knowledge sharing

<table>
<thead>
<tr>
<th>Types of incentives</th>
<th>‘Expected incentives’</th>
<th>‘Used incentives’</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Med</td>
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<tr>
<td>Tangible incentives</td>
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<td>4</td>
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<tr>
<td>Activity incentives</td>
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<tr>
<td>Social incentives</td>
<td>3.33</td>
<td>3</td>
</tr>
<tr>
<td>Tool-related incentives</td>
<td>2.72</td>
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<tr>
<td>Promotion-related incentives</td>
<td>2.63</td>
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</tr>
</tbody>
</table>

Tangible incentives mainly encourage prosumers to knowledge sharing

The ‘used incentives’ do not meet prosumers’ expectations; prosumers would like to use more incentives of any type
... incentives encouraging to knowledge sharing

<table>
<thead>
<tr>
<th>Incentives</th>
<th>‘Expected incentives’</th>
<th>‘Used incentives’</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Med</td>
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<tr>
<td>Monetary awards</td>
<td>4.27</td>
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<tr>
<td>Free samples of products</td>
<td>4.21</td>
<td>4</td>
</tr>
<tr>
<td>Material gifts</td>
<td>4.06</td>
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</tr>
<tr>
<td>Free usage (testing) of prototypes</td>
<td>3.94</td>
<td>4</td>
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<tr>
<td><strong>Adjustment of products/services to own needs</strong></td>
<td>3.85</td>
<td>4</td>
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<tr>
<td>Collaboration with people who share passions, skill, knowledge, and experience</td>
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<td>4</td>
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<tr>
<td><strong>Satisfaction with enterprises and their products/services</strong></td>
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<td>4</td>
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<tr>
<td><strong>Improvement of the products/services quality</strong></td>
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<td>4</td>
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<tr>
<td>Cooperation with well-known enterprises</td>
<td>3.43</td>
<td>4</td>
</tr>
<tr>
<td>Participating in interesting initiatives</td>
<td>3.39</td>
<td>4</td>
</tr>
<tr>
<td>Building peer recognition, status, reputation</td>
<td>3.22</td>
<td>3</td>
</tr>
</tbody>
</table>

Prosumers mainly need tangible incentives, i.e. monetary awards, free sample of products and material gifts for encouraging them to knowledge sharing with enterprises.
... incentives encouraging to knowledge sharing

H: Gender/Age/Educational background of prosumers and types of incentives expected to be used by them are independent

<table>
<thead>
<tr>
<th>Characteristics of prosumers * Types of incentives</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>Gender * Tangible</td>
<td>18.061</td>
<td>4</td>
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<td>Gender and tangible/activity/social/tool-related/promotion-related incentives are not independent</td>
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<td>Gender * Activity</td>
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<td>4</td>
<td>0.000</td>
<td></td>
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<tr>
<td>Gender * Social</td>
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<td>4</td>
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<td>Gender * Tool-related</td>
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<td>0.001</td>
<td>Educational background and tangible/activity/social/tool-related incentives are not independent</td>
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<td>30.752</td>
<td>8</td>
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</tbody>
</table>

There are significant relationships between prosumers’ gender, generation, educational background and various types of incentives
There are the significant differences in the prosumers expectations of tangible incentives depending on their various generations.
... incentives encouraging to knowledge sharing

There are the significant differences in the prosumers expectations of all kinds of incentives depending on prosumers’ gender
Model of using prosumers' knowledge in enterprises

1. **TYPES OF KNOWLEDGE**
   - Knowledge for prosumers

2. **ATTITUDES TO KNOWLEDGE SHARING**
   - conditional willingness
   - unconditional willingness
   - unwillingness

3. **WAYS OF KNOWLEDGE SHARING**
   - scoring
   - commenting
   - testing
   - improvement
   - designing

4. **ICTs SUPPORTING KNOWLEDGE SHARING**
   - e-mail, Internet forum, enterprise’s websites, popular information websites, specialized websites, mobile applications, Internet applications provided by enterprise, file sharing portals, Facebook, crowdsourcing portals, business blogs, private blogs, online surveys

5. **INCENTIVES ENCOURAGING TO KNOWLEDGE SHARING**
   - tangible incentives
   - activity incentives
   - social incentives
   - tool-related incentives
   - promotion-related incentives

6. **BUSINESS PROCESSES**
   - Process 1.0
   - Process 2.0
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   - Process 5.0

**Enterprise**

**Prosumers**

**TYPES OF KNOWLEDGE**

- Knowledge about prosumers
- Knowledge from prosumers

**WAYS OF KNOWLEDGE SHARING**

- ICTs

**INCENTIVES ENCOURAGING TO KNOWLEDGE SHARING**

- intangible incentives
ICTs supporting prosumers’ knowledge sharing

Prosumers would like to use more frequently any types of ICTs to share knowledge with enterprises than they are currently using.
ICTs supporting prosumers’ knowledge sharing

<table>
<thead>
<tr>
<th>ICTs</th>
<th>'Expected ICTs'</th>
<th>'Used ICTs'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Med.</td>
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<tr>
<td>Enterprises' websites</td>
<td>4.00</td>
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</tr>
<tr>
<td>E-mails</td>
<td>3.77</td>
<td>4</td>
</tr>
<tr>
<td>Industry specialized portals</td>
<td>3.57</td>
<td>4</td>
</tr>
<tr>
<td>Internet forums</td>
<td>3.54</td>
<td>4</td>
</tr>
<tr>
<td>Popular information websites</td>
<td>3.44</td>
<td>4</td>
</tr>
<tr>
<td>Enterprises' specialized applications</td>
<td>3.43</td>
<td>4</td>
</tr>
<tr>
<td>Facebook fanpages</td>
<td>3.38</td>
<td>4</td>
</tr>
<tr>
<td>Mobile applications</td>
<td>3.28</td>
<td>4</td>
</tr>
<tr>
<td>File sharing portals</td>
<td>3.16</td>
<td>3</td>
</tr>
<tr>
<td>Online surveys</td>
<td>3.10</td>
<td>3</td>
</tr>
<tr>
<td>Business blogs</td>
<td>2.85</td>
<td>3</td>
</tr>
<tr>
<td>Private blogs</td>
<td>2.73</td>
<td>3</td>
</tr>
<tr>
<td>Enterprises' helplines/helpdesks</td>
<td>2.52</td>
<td>2</td>
</tr>
<tr>
<td>Crowdsourcing portals</td>
<td>2.34</td>
<td>2</td>
</tr>
</tbody>
</table>

Prosumers would like to use more frequently any types of ICTs to share knowledge with enterprises than they are currently using.
Model of using prosumers' knowledge in enterprises

1. TYPES OF KNOWLEDGE
   - Knowledge for prosumers
   - Knowledge about prosumers
   - Knowledge from prosumers

2. ATTITUDES TO KNOWLEDGE SHARING
   - conditional willingness
   - unconditional willingness
   - unwillingness

3. INCENTIVES ENCOURAGING TO KNOWLEDGE SHARING
   - tangible incentives
   - activity incentives
   - social incentives
   - tool-related incentives
   - promotion-related incentives

4. ICTs SUPPORTING KNOWLEDGE SHARING
   - e-mail, Internet forum, enterprise’s websites, popular information websites, specialized websites, mobile applications, Internet applications provided by enterprise, file sharing portals, Facebook, crowdsourcing portals, business blogs, private blogs, online surveys

5. WAYS OF KNOWLEDGE SHARING
   - scoring
   - reviews
   - improvement
   - designing

6. BUSINESS PROCESSES
   - Process 1.0
   - Process 2.0
   - Process 3.0
   - Process 4.0
   - Process 5.0
## Ways of prosumers’ knowledge sharing

<table>
<thead>
<tr>
<th>Ways of knowledge sharing</th>
<th>Definitely not</th>
<th>Probably not</th>
<th>Neither yes nor not</th>
<th>Probably yes</th>
<th>Definitely yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoring</td>
<td>16,0%</td>
<td>30,4%</td>
<td>14,8%</td>
<td>21,2%</td>
<td>17,6%</td>
</tr>
<tr>
<td>Reviews</td>
<td>15,5%</td>
<td>31,0%</td>
<td>15,0%</td>
<td>20,2%</td>
<td>18,4%</td>
</tr>
<tr>
<td>Improvement</td>
<td>54,4%</td>
<td>33,0%</td>
<td>6,6%</td>
<td>3,8%</td>
<td>2,1%</td>
</tr>
<tr>
<td>Designing</td>
<td>56,3%</td>
<td>34,4%</td>
<td>4,7%</td>
<td>3,1%</td>
<td>1,4%</td>
</tr>
</tbody>
</table>

Prosumers mainly review and score enterprises products/services, whereas they very rarely make improvements to products/services and design new products/services.
ATTITUDES TO
KNOWLEDGE SHARING
- conditional willingness
- unconditional willingness
- unwillingness

INCENTIVES
ENCOURAGING TO
KNOWLEDGE SHARING
- tangible incentives
- activity incentives
- social incentives
- tool-related incentives
- promotion-related incentives

TYPES OF
KNOWLEDGE
KNOWLEDGE SHARING
- Knowledge for prosumers

WAYS OF
KNOWLEDGE SHARING
- scoring reviews
- improvement designing

WAYS OF
KNOWLEDGE SHARING
- Knowledge about prosumers
- Knowledge from prosumers

ICTs SUPPORTING KNOWLEDGE SHARING
- e-mail, Internet forum, enterprise’s websites, popular information websites, specialized websites, mobile applications, Internet applications provided by enterprise, file sharing portals, Facebook, crowdsourcing portals, business blogs, private blogs, online surveys

BUSINESS PROCESSES
- Process 1.0
- Process 2.0
- Process 3.0
- Process 4.0
- Process 5.0

Process 1.0
Process 2.0
Process 3.0
Process 4.0
Process 5.0

Enterprise
Prosumers
Business processes supported by prosumers’ knowledge

APQC’s Process Classification Framework

What are the business processes in which prosumers' knowledge can be used?

**Process 2.0** – Develop and manage products and services

**Process 3.0** – Market and sell products and services

**Process 4.0** – Deliver products and services

**Process 5.0** – Manage customer services
… business processes supported by prosumers’ knowledge

<table>
<thead>
<tr>
<th>Operating business processes</th>
<th>Types of prosumers participation</th>
</tr>
</thead>
</table>
| 2.0 Develop and Manage Products and Services | • designing new products  
• designing new functionalities to existing products  
• adjusting products to own expectations and preferences  
• testing (checking) products  
• improving quality of products  
• improving existing functionalities of products  
• improving reliability and durability of products  
• improving ease and intuitiveness of product use |
... business processes supported by prosumers’ knowledge

<table>
<thead>
<tr>
<th>Operational business process</th>
<th>Types of prosumers participation</th>
</tr>
</thead>
</table>
| **3.0 Market and Sell Products and Services**    | • participation in promotion and marketing campaigns  
                                                  • creating advertising spots  
                                                  • establishing new marketing channels  
                                                  • establishing new product distribution channels  
                                                  • establishing customer community of an enterprise  
                                                  • influencing product prices  
                                                  • designing promotional gifts and gadgets  
                                                  • designing promotions and discounts |
| **4.0 Deliver Products and Services**             | • improving ordering process  
                                                  • establishing new ways of ordering products and their delivery |
| **5.0 Manage Customer Service**                   | • improving quality and lead time of customer service  
                                                  • improving handling complaints and warranty services  
                                                  • defining success factors of effective and professional customer service |
Prosumers’ knowledge useful for business processes

Prosumers share knowledge and would mainly like to share knowledge in order to develop and improve four business processes:

- **2.0 Develop and Manage Products and Services**: 68.5% future participation, 52.3% actual participation
- **3.0 Market and Sell Products and Services**: 58.1% future participation, 45.2% actual participation
- **4.0 Deliver Products and Services**: 57.1% future participation, 58.5% actual participation
- **5.0 Manage Customer Service**: 55.9% future participation, 58.3% actual participation
... business processes supported by prosumers’ knowledge

2.0 Develop and Manage Products and Service

- Improving product's performance
- Improving ease of product's usage
- Improving product's reliability
- Improving product's functionality
- Improving product's appearance
- Improving material quality
- Designing new product

Prosumers would like to share knowledge more frequently in order to develop and improve products and service.
... business processes supported by prosumers’ knowledge

Prosumers would like to share knowledge more frequently in order to develop and improve market and sell products and services

3.0 Market and Sell Products and Services

- Extending sales channel
  - Future participation: 44.8%
  - Actual participation: 60.7%

- Product loans strategy
  - Future participation: 7.2%
  - Actual participation: 37.0%

- Product pricing strategy
  - Future participation: 39.1%
  - Actual participation: 47.7%

- Advertising or marketing campaign
  - Future participation: 32.0%
  - Actual participation: 44.1%
... business processes supported by prosumers’ knowledge

4.0 Deliver Products and Services

- Improving product delivery (times and place of shipment)
  - Future participation: 60.6%
  - Actual participation: 55.7%

- Improving product ordering (ways to find products, payment methods)
  - Future participation: 56.4%
  - Actual participation: 58.6%

Prosumers would like to share knowledge more frequently in order to develop and improve ordering and delivering products and services.
Prosumers would like to share knowledge in order to develop and improve customer services and relations with customers
Adopting model of using prosumers' knowledge in enterprises

1. Types of knowledge
   - Knowledge for prosumers

2. Attitudes to knowledge sharing
   - Conditional willingness
   - Unconditional willingness
   - Unwillingness

3. Incentives encouraging to knowledge sharing
   - Tangible incentives
   - Activity incentives
   - Social incentives
   - Tool-related incentives
   - Promotion-related incentives

4. ICTs supporting knowledge sharing
   - E-mail, Internet forum, enterprise’s websites, popular information websites, specialized websites, mobile applications, Internet applications provided by enterprise, file sharing portals, Facebook, crowdsourcing portals, business blogs, private blogs, online surveys

5. Ways of knowledge sharing
   - Scoring
   - Reviews
   - Improvement
   - Designing

6. Business processes
   - Process 1.0
   - Process 2.0
   - Process 3.0
   - Process 4.0
   - Process 5.0
... adopting model of using prosumers' knowledge in enterprises

- **Step 1.** Identification and analysis of business processes in which prosumers' knowledge can be used
  - 2.0 Develop and Manage Products and Services
  - 3.0 Market and Sell Products and Services
  - 4.0 Deliver Products and Services
  - 5.0 Manage Customer Service

- **Step 2.** Identification and analysis of prosumers' knowledge that can be used to improve identified processes
  - Knowledge about prosumers
  - Knowledge from prosumers
  - Knowledge for prosumers
... adopting model of using prosumers' knowledge in enterprises

**Step 3.** Identification and analysis of ways of prosumers’ knowledge sharing

- Scoring
- Reviewing
- Improving
- Designing

Enterprises should aim to better understand how customers map themselves onto other customer experiences.

Enterprises should explore how the customer is better informed to make choices from the customer’s discussions.

Enterprises should recognise the value placed to explore where they are weak and have a means to correct these areas.
... adopting model of using prosumers' knowledge in enterprises

**Step 4. Identification and analysis of prosumers’ attitudes to knowledge sharing**

- **Conditional willingness** – prosumers share knowledge under the condition of obtaining benefits
- **Unconditional willingness (garnees)** – prosumers share knowledge without expecting any tangible benefits
- **Unwillingness** – prosumers are not willing to share knowledge

**Step 5. Designing and implementing incentives encouraging prosumers to knowledge sharing**

- **Tangible incentives** – monetary awards, free sample of products, material gifts, free usage of product prototype
- **Intangible incentives** – adjustment of products to own needs, cooperation with people who share passions, satisfaction with enterprises and their products
Step 6. Implementation and adoption of ICTs supporting prosumers’ knowledge sharing

- Enterprises’ websites
- Industry specialized portals
- Popular information websites
- Enterprises’ specialized applications
- E-mails
- Internet forums
- Facebook fanpages
- Mobile applications
Research contribution

- Providing the model of using prosumers’ knowledge in enterprises
- Examining and evaluating the components of model of using prosumers’ knowledge in enterprises
Implication for researchers

- **New line of thinking and further scope** for researchers in areas of using prosumers’ knowledge in enterprises
- **Using this model and doing similar analyses** with different sample groups and in different countries
- **Developing, verifying and improving** this model
Implication for practitioners

- Enterprises could find answers to questions about:
  - processes in which prosumers’ knowledge can be useful
  - ways of prosumers’ knowledge sharing
  - incentives encouraging prosumers to knowledge sharing
  - ICTs supporting prosumers’ knowledge sharing

- Prosumers’ knowledge could help enterprises to incorporate prosumers into improving business and creating added value
Limitation and future research

This study only examines the data of Polish prosumers

Further research is needed in order to confirm the generalisability of achieved results with respect to other countries


Limitation and future research

- This study only employs a snapshot research approach

  Further research needs to consider a longitudinal approach, based on data collected across several time periods.
