BUSINESS INNOVATION IN CROATIAN WOOD PRODUCTS INDUSTRY COMPANIES

Ivana Perić, Kristina Klarić, Andreja Pirc Barčić
University of Zagreb – Faculty of Forestry
Department for Production Organization
Introduction

The purpose of the business innovation process is to create value for the organization

- new methods, ideas, creative solutions
- new products, production processes, and business activities

new value for customers
Introduction

This study presents investigation that attempt to explore how some selected business innovation (like, e.g quality and environmental activities, e-commerce) have an impact on business success of wood industry companies in Croatia.
Methodology

STUDY INCLUDED:
- active furniture manufacturing and wood processing companies, with > 5 employees
- with the best performance indicator - credit rating mark “A” (the best 10% of each group)

PERFORMANCE INDICATORS / FINANCIAL INDICATORS:
- EBIT (Earnings Before Interest and Tax),
- ETQ (Efficiency of Total Equity),
- ROA (Return on Assets),
- ROS (Return on Sales) and
- ROE (Return on Equity).
Methodology

1. E-BUSINESS INNOVATIVENESS INDICATORS (EBII):

- having website;
- using e-mails;
- having Web sales;
- network profiles: Facebook; Twitter; Instagram; LinkedIn and YouTube

Conducted on websites
Methodology

2. CERTIFICATION INNOVATIVENESS INDICATORS:

- FSC CoC
- PEFC CoC
- ISO 9001
- ISO 14001

Official database
Kvaliteta.net, 2018
Methodology

3. CROATIAN QUALITY MARKS INNOVATIVENESS INDICATORS (CQMII):
   - Croatian Quality mark
   - Croatian Creation mark

4. EU FUNDING INNOVATIVENESS INDICATORS (EUFI):
   - beneficiaries of EU funds - Yes/No

Croatian Chamber of Economy
https://strukturnifondovi.hr/
Results

- totally **47** companies - **32** furniture manufacturing sector (C 31) and **15** from wood processing sector (C 16)

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>Furniture Production (N=32) (%)</th>
<th>Wood processing (N=15) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>from 5 to 10</td>
<td>3.1</td>
<td>/</td>
</tr>
<tr>
<td>from 11 to 50</td>
<td><strong>50.00</strong></td>
<td>20.00</td>
</tr>
<tr>
<td>from 50 to 250</td>
<td><strong>43.8</strong></td>
<td><strong>60.00</strong></td>
</tr>
<tr>
<td>more than 250</td>
<td>3.1</td>
<td>20.00</td>
</tr>
</tbody>
</table>
Results

- Performance Indicators of the Companies (average values)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Furniture Production N = 32</th>
<th>Wood processing N = 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>4,775,839 HRK</td>
<td><strong>7,836,260</strong> HRK</td>
</tr>
<tr>
<td>ETQ</td>
<td>1.11</td>
<td>1.10</td>
</tr>
<tr>
<td>ROA</td>
<td><strong>11.49</strong> %</td>
<td>8.83 %</td>
</tr>
<tr>
<td>ROS</td>
<td>7.72 %</td>
<td>8.02 %</td>
</tr>
<tr>
<td>ROE</td>
<td><strong>22.26</strong> %</td>
<td>14.74 %</td>
</tr>
</tbody>
</table>
### Results

1. E-business innovativeness indicators (EBII)

<table>
<thead>
<tr>
<th>Innovativeness Indicator</th>
<th>Production of furniture N=32</th>
<th>Wood processing N=15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td>93.75 %</td>
<td>100.00 %</td>
</tr>
<tr>
<td>Online Sales</td>
<td>15.63 %</td>
<td>13.33 %</td>
</tr>
<tr>
<td>E-mail</td>
<td>96.88 %</td>
<td>100.00 %</td>
</tr>
<tr>
<td>Facebook</td>
<td>84.38 %</td>
<td>66.67 %</td>
</tr>
<tr>
<td>Twitter</td>
<td>21.88 %</td>
<td>6.67 %</td>
</tr>
<tr>
<td>Instagram</td>
<td>21.88 %</td>
<td>20.00 %</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>28.13 %</td>
<td>13.33 %</td>
</tr>
<tr>
<td>YouTube</td>
<td>25.00 %</td>
<td>33.33 %</td>
</tr>
</tbody>
</table>

Increasing the Use of Wood in the Global Bio-Economy, Belgrade, Serbia, September 26th – 28th, 2018
Results

2. Certification innovativeness indicators (CII)

<table>
<thead>
<tr>
<th>Innovativeness Indicator</th>
<th>Furniture Production N=32</th>
<th>Wood processing N=15</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSC CoC</td>
<td>25.00 %</td>
<td>86.67 %</td>
</tr>
<tr>
<td>PEFC CoC</td>
<td>/</td>
<td>6.67 %</td>
</tr>
<tr>
<td>ISO 9001</td>
<td>28.13 %</td>
<td>40.00 %</td>
</tr>
<tr>
<td>ISO 14001</td>
<td>9.38 %</td>
<td>26.67 %</td>
</tr>
</tbody>
</table>
Results

3. Croatian Quality Marks Innovativeness Indicators (CQMII)

<table>
<thead>
<tr>
<th>Innovativeness Indicator</th>
<th>Furniture Production N=32</th>
<th>Wood processing N=15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Croatian Quality mark</td>
<td>3.31 %</td>
<td>6.67 %</td>
</tr>
<tr>
<td>Croatian Creation</td>
<td>0.00 %</td>
<td>0.00 %</td>
</tr>
</tbody>
</table>

4. EU funding innovativeness indicators (EUFI)

- totally 14 (43.75 %) companies from C 31 sector were beneficiaries of EU funds and 5 (33.33 %) from C 16.
- average funding for companies that belong to sector C 31 was 5 423 149 HRK and for C 61 companies was 15 497 203 HRK.
Results

IN TOTAL:

- Mann-Whitney U test showed that companies from both sectors who have website achieved better performance profitability ratios ROS and ROE (U = 2.00; n1 = 2; n1 = 45; p = 0.007; p = 0.17 two-tailed)

- Companies who have implemented FSC CoC certification have better profitability indicator EBIT, instead of those who don't have FSC CoC (U = 127 000; n1 = 26; n1 = 21; p = 0.002).

SEPARATELY:

- For C 31, results showed that implementation of ISO 14001, ISO 9001 and FSC CoC has a small and positive and effect on performance profitability ratios ROS and EBIT (r = 0.238; r = 0.290; r = 0.211; p<0.05).

- For C 31, E- bussies innovation activities (like having a WEB site, Instagram profile) have small but positive effect on company profitability (r= 0.295 ; p<0.05).

- For C 31, positive and small effect on profitability ratios ROS and using EU funds (r = 0.212; p<0.05).
Results

SEPARATELY:

- For C 16, Moderate significant effect have implementation of FSC CoC and PEFC CoC on company’s profitability indicator EBIT
- For C 16, Croatian quality mark has small but positive effect on company’s profitability (r = 0.247; p<0.05)
- For C 16, positive and small effect on profitability ratios ROS and using EU funds (r = 0.212; p<0.05).
- For C 16, Correlation matrix showed moderate effect on performance profitability ratios ROA and EBIT within wood processing companies that have LinkedIn, Facebook and Twitter profile (r = 0.545; r = 0.433; r = 0.433; p<0.05).
- For C 16, small effect was found between profitability ratios ROS, profitability indicator ETQ and EU founding's (r = 0.212; r = 0.630; p < 0.05).
Conclusion

- The study shows that researched companies mainly have implemented different kinds of innovative segments in their production processes and in business activities.
- The results have shown that majority of researched companies have implemented e-business activities, with the slightly better results in furniture manufacturing than in wood processing companies,
- Regarding certification innovativeness indicators, FSC CoC certification found to be mostly implemented in wood processing, and ISO 9001 certification in furniture manufacturing companies.
- This research has confirmed that E-business innovativeness indicators like: having a website, Facebook, LinkedIn and Twitter company profile have positive impact on business success of wood industry companies in Croatia.
- Further, that implementation of ISO 9001, ISO 14001, FSC CoC certification and Croatian quality marks in Croatian wood industry companies have a positive effect on companies’ business success.