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ACTORS-RESOURCES-ACTIVITIES ANALYSIS AS A BASIS FOR POLISH FURNITURE NETWORK RESEARCH

The aim of the article is to identify the specifics of the furniture industry based upon the example of Poland and with the application of the industrial network approach. In the article, the ARA (Actors-Resources-Activities) model is adopted as the basic framework developed within the industrial network approach. This in turn allows for the identification of the interdependencies between important entities (actors), resources and activities influencing this industry, the main entities within the industry, the surrounding business environment as well as their characteristics. A special emphasis is put on the entities from the environment surrounding the furniture industry so as to include some significant factors influencing it – both in a positive and negative sense.

Keywords: business network, industrial network approach, network relationships, cooperation, ARA model, furniture industry, furniture industry environment

Introduction

Due to transactions, formal and informal relationships, practically every entity to a varying extent is linked with others. The essence of business enterprise is of course tied to constant interactions and trade exchange with other entities on the market and „firms should not be seen in isolation but as being connected in business systems” [Ritter et al. 2004].

Moreover, due to increasing competitive pressures and dynamic changes occurring within their business environments, companies may not achieve their goals if they limit their strategies only to internal development. For this reason, it is important to move towards close cooperation and network relationships that

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can bring equally beneficial or perhaps even better results than “pure” competition [Ratajczak-Mrozek 2013]. Significant benefits flowing from cooperation and network relationships are important from the perspective of firms (at least due to an improvement in the market results achieved [Håkansson, Snehota 1995; Gadde, Snehota 2000; Ritter et al. 2004; Ratajczak-Mrozek, Małys 2012; Ratajczak-Mrozek 2012a]), as well as specific industries or the economy as a whole (improvement in competitiveness). For this reason, an analysis of the specifics of industry sectors from a network perspective is also important for supporting regulatory ties. In this article the focus of such an analysis is the furniture industry, an analysis which is strongly justified.

The furniture market in Poland is an important market industry which drives many other goods markets. At the same time, the production of furniture is one of the wood industries which contributes the most to the country’s economy. In 2011, the furniture industry accounted for almost 1% of gross output and gross value added (conversely the wood industry accounted for 2.9% and 1.9% respectively) [CSO 2012c]. Sold furniture production in 2012 amounted to 29.7 m PLN, i.e. 2.5% of sold industry production [CSO 2012c]. The furniture industry’s leading position within the wood sector is demonstrated by the fact that it accounted for 32% of sold production in 2012 and 47% of the average paid employment in the furniture industry & wood sector in 2011 (144.3 k people). For many years, furniture has been almost the flagship item amongst Polish exports. In 2012, the share of furniture in exports amounted to 4.3% and they occupied 5th place in the ranking of the value of goods exported from Poland. On a global scale, the value of exported furniture (3%) places Poland in 4th position [WTI estimates; EPF 2011; Adamowicz, Wiktorski, 2010]. Moreover, Poland is among the leading furniture producers in the world. The value of furniture produced is estimated to be 9th in world rankings (2009) and 4th in Europe (2010) [EPF 2011; Adamowicz, Wiktorski 2010].

The analysis of the specifics of the furniture industry which is usually carried out is done so in the form of a report based upon industry data [Ratajczak et al. 2003; Adamowicz, Wiktorski 2006; Ratajczak et al. 2008] or descriptions of entities from the industry [Osiecka 2009]. There is very little analysis available regarding the importance of entities from the surrounding business environment [Ratajczak 2013]. At the same time, the importance of a complex analysis of the specifics of the industry should be clearly underlined. An analysis conducted from the perspective of the relationship at entity level (including the surrounding business environment), resources, or joint activities, provides an insight into the factors influencing management decisions at firm level or indeed the regulatory decisions pertaining to this field of the economy.

As a result, the aim of the article is to identify the specifics of the furniture industry based upon the example of Poland and with the application of the industrial network approach, which as a result allows for the identification of the interdepen-

dencies between important entities (actors), resources and activities influencing this industry. A special emphasis is put on the entities from the environment surrounding the furniture industry so as to include some significant factors influencing it – both in a positive and negative sense.

Theoretical background

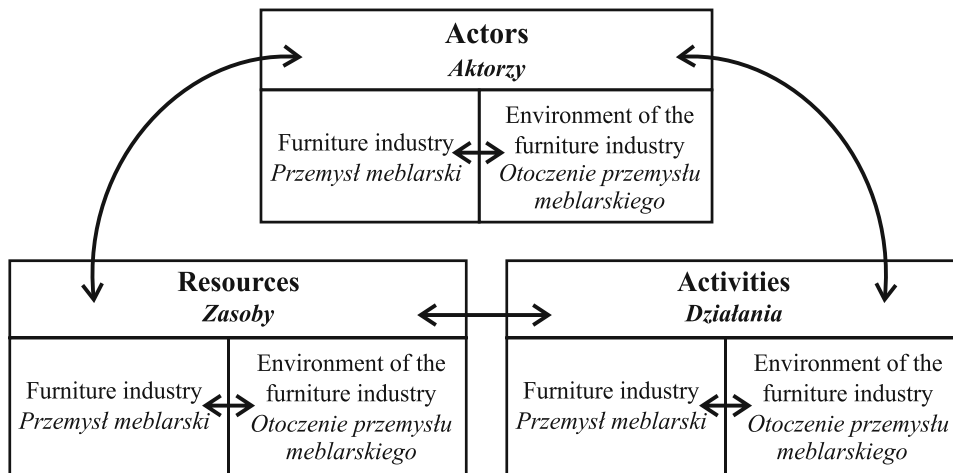
The industrial network approach to defining a business network (industrial network approach) is linked to research carried out by the Industrial Marketing and Purchasing Group [IMP Group]. This concept stresses the significance of all the formal and informal, direct and indirect contacts (network relationships) a firm has with the entities in its surrounding environment which constitute an extended network. A relationship is developed through interactions, cooperation between entities [Easton 1992]. It may be established with different groups of entities (such as customers, suppliers, complementors, influential entities and competitors [Hollensen 2003; Ritter et al. 2004]). A business network (an industrial network) is a set of repetitive transactions based upon structural and relational formations with dynamic boundaries comprising interconnected elements (actors, resources and activities) [Todeva 2006]. A system of relationships is often characterised as being decentralised and largely informal, although it may also emerge in a strategic, formal manner. The business network is an effect of historical, mainly long-term close cooperation and a series of interactions going beyond single buy-sell transactions, which in turn create cooperation norms and build trust [Turnbull et al. 1996; Ford et al. 1986].

The basic framework developed within the industrial network approach is the ARA model (Actors-Resources-Activities) [Håkansson, Snehota 1995; Håkansson, Johanson 1992]. According to the ARA model, relationships are associated with the simultaneous exchange and adaptation of input and output resources, as well as activities (participation in events and performing business functions within the value chain) between cooperating participants of the network. Therefore, they are made up of actor bonds, activity links and resource ties, which create three overlapping networks [Lenney, Easton 2009]. Actor interdependencies are represented by the mutual dependency and interpersonal links developed between two interacting partners. The resources within resource interdependencies may be exchanged, mutually adapted, accumulated or even created. In this way, not only the individual resources are analysed but also those which result from interaction patterns between two or more actors. Finally, the activity interdependencies are represented by joint operations, activity participation and coordinated behaviour (which in turn may be important for the effectiveness of a network structure) [Todeva 2006]. In the case of the ARA model, it has to be made clear who the actors are, what their activities are and with which resources they interact when analysing data and network structure [Lenney, Easton 2009].

The idea of Actors, Resources and Activities makes up part of the network picture [Henneberg et al. 2006]. The network picture refers to the views of the network held by participants in that network [Ford et al. 2002; Henneberg et al. 2006]. This picture is important because it forms the basis for their strategy analysis and development.

Conceptual framework and the methodology

In the article, the industrial network approach and ARA model are adopted in order to analyse the specifics of the furniture industry which makes up the conceptual framework (fig. 1).



Source: Authors' own work

Źródło: Opracowanie własne

Fig. 1. Conceptual framework

Rys. 1. Ramy koncepcyjne

Fig. 1 shows the ARA model linking actors with resources and activities from both the furniture industry and the environment outside this industry, and the interactions (creating relationships) between them.

In keeping with the adopted conceptual framework, firms (actors) operating in the furniture industry have various relationships – both with entities from the industry as well as from outside it (firms, but also administrative or education institutions, for example). This creates the actor level of the furniture industry specifics analysis. Actors' interactions are accompanied by interactions on the level of resources and activities. These include resource ties and activity links both within the furniture industry, as well as between this industry and the surrounding environment.

In this article, we sequentially analyse the elements presented as part of the conceptual framework. First we analyse the specifics of the furniture indus-

try, then we describe the actors from the industry, actors from the surrounding environment as well as the resource characteristics and the interdependence of activities.

The basis for the presented discussion is the analysis of secondary sources concerning data from the furniture industry. A comparative analysis of sectorial statistical data essentially covers the years 2011–2013.

The specifics of actors – the furniture industry

The main focal actors in the Polish furniture network structure are the firms in the industry. Among them, due to the scope of the core business and on the basis of the Polish Classification by Activity (the fourth level of the 2007 NACE classification is in line with the European NACE Rev. 2) the following can be distinguished [Rozporządzenie Rady Ministrów 2007]:

- manufacturers of office and shop furniture (C 31.01),
- manufacturers of kitchen furniture (C 31.02),
- manufacturers of mattresses (C 31.03),
- manufacturers of other furniture (C 31.09).

Firms classified as producers of “other furniture” are dominant in the entity structure of the furniture industry. Thus, among the actors of the furniture industry network, manufacturers of room furniture, bedroom furniture, garden furniture and other upholstered furniture should be defined, as well as firms providing services associated with the production of furniture, such as painting and upholstery. In the first half of 2013, actors from this group of entities (others) made up almost half (45%) of the overall entities in the furniture industry. Table 1 contains a detailed structure of the entities in the furniture industry per employment group in the first half of 2013.

Upon examining the characteristics of the actors from the furniture industry, it should be noted that there is a large degree of fragmentation of manufacturers. In the first half of 2013, there were almost 24 thousand entities of which 92% of firms employed up to 9 people and 6% between 10 to 49 employees. Only 2% were large or very large firms [CSO 2013a]. Such a structure implies both problems with management and, it would seem, should encourage the formation of network structures with the view to at least increasing bargaining power or gaining access to resources. In 2011, micro and small firms employing up to 49 people generated 21% of the value of sold production of the furniture industry, at the same time making up 27% of average paid employment in the furniture industry [own calculations; CSO 2012b; CSO 2012c]. It is typical for the furniture manufacturing industry that small upholsterers and carpentry firms are dominant, where work is often focused on providing services [Ratajczak 2009]. Based upon accessible reporting and knowledge of the industry, it can be assumed that approximately 2000 firms are solely engaged in furniture production (without services).

This large share of service activities as well as the linking of services with production translates into the characteristic of activities interdependence.

Table 1. Number of firms in the furniture industry by employment groups in the first half of 2013

Tabela 1. Liczba podmiotów w przemyśle meblarskim według grup zatrudnienia w pierwszym półroczu 2013 roku

Specification <i>Wyszczególnienie</i>	Employment group <i>Grupy zatrudnienia</i>				
	Total	0–9	10–49	50–249	250 = >
Furniture production, including: Produkcja mebli, w tym:					
– manufacturers of office and shop furniture produkcja mebli biurowych i sklepowych	5940	5535	334	63	8
– manufacturers of kitchen furniture produkcja mebli kuchennych	6903	6634	240	28	1
– manufacturers of mattresses produkcja materaców	191	165	18	5	3
– manufacturers of other furniture produkcja pozostałych mebli	10594	9412	867	234	81
Total furniture production Razem produkcja mebli	23628	21746	1459	330	93

As per the 2007 NACE classification

Według klasyfikacji PKD 2007

Source: Authors' own work based upon [CSO 2013a]

Źródło: Opracowanie własne na podstawie [CSO 2013a]

It is worthwhile noting that in Poland in 2011 the coefficient of sold production concentration in the furniture industry amounted to 0.784 and was close to the level of the manufacturing sold production index for the country, which was equal to 0.805¹. Here an example can be the results of the study carried out for the group of 1745 furniture firms from 2011. In this group (of 1745 furniture firms), 50% of sold production was attributed to 2% of the entities employing more than 9 persons, whilst 13% of firms made up 80% of the sold production [CSO 2012b]. Such an entity structure can additionally promote the development of closer relations and cooperation between firms. In particular, the level of technological advancement among firms producing furniture is differentiated. Among others, this is related to the significant differentiation in the level of technological advancement of products as well as production standards in specific industries (e.g. a lower level of technological advancement in upholstered furniture) and gro-

¹ The coefficient of sold production concentration is calculated according to an interpolative formula, constructed on the basis of the Lorenz curve. The coefficient assumes values between 0 and 1; the higher the concentration, the closer the value of this coefficient is to 1 [CSO 2012a].

ups of firms (outstanding due to the size of business entities which is connected to investment activity).

Another important issue for network structures in furniture manufacturing is the fact that there is an increasing number of foreign entities among those actors making up the network. REGON (National Register of Business Entities) registry data shows that whilst the number of furniture manufacturers fell between 2011 and mid 2013 (a decrease of approx. 11%), there was an increase in the number of foreign-owned firms in this period (an 8% increase or 252 firms, table 2). Additionally, foreign actors in the furniture industry are also present in firms with mixed ownership, i.e. domestic and foreign. During the examined period, 230 such firms were identified. This is evidence of the trans-regional importance of the Polish furniture industry which can influence resource structures and the activities of furniture networks. In this group of actors, as in the whole furniture industry in Poland, firms engaged in the production of so-called other furniture are dominant. Their share of firms which are the property of foreign investors is close to 70%. However, the total number of furniture firms under foreign ownership does not exceed 1% [CSO 2013a]. It is estimated that approx. 70% of firms with foreign capital in the furniture industry employ at least 10 employees and generate 30% of average paid employment in the furniture industry [CSO 2012a].

Table 2. Entities in the furniture industry & types of ownership
Tabela 2. Podmioty w przemyśle meblarskim według formy własności

Details Wyszczególnienie	Entities in the Furniture Industry & types of ownership Podmioty w przemyśle meblarskim i forma własności									
	Total Razem	Public Sector Sektor publiczny	Private Sector Sektor prywatny	domestic individuals krajowych osób fizycznych	private domestic other prywatna krajowa pozostała	foreign investors osób zagranicznych	mixed, dominated by domestic individuals mieszana z przewagą fizycznych	mixed, dominated by private domestic other mieszana z przewagą własności prywatnej krajowej pozostałej	mixed, dominated by foreign individuals mieszana z przewagą własności osób zagranicznych	mixed, where neither form of ownership is dominant mieszana z brakiem przewagi którejś z form własności
Furniture production including: Produkcja mebli, w tym:										
Production of shop and office furniture Produkcja mebli biurowych i sklepowych	5940	3	5937	5747	74	53	21	10	21	8
Production of kitchen furniture Produkcja mebli kuchennych	6903	0	6903	6836	42	17	5	1	2	0
Production of mattresses Produkcja materaców	191	0	191	182	1	6	1	0	0	1
Production of other furniture Produkcja pozostałych mebli	10594	1	10593	9987	267	176	41	29	57	33
Total furniture production Razem produkcja mebli	23628	4	23624	22752	384	252	68	40	80	42

Polish Classification by Activity (NACE) 2007
Według klasyfikacji PKD 2007

Source: Authors' own work based upon [CSO 2013a]
Źródło: Opracowanie własne na podstawie [CSO 2013a]

The share of foreign capital among actors from the furniture industry is evident also in the presence of numerous production plants owned by foreign concerns. Foreign actors playing an important role in the Polish furniture industry network structure come from various countries, such as Sweden, the USA and Belgium. The largest foreign economic entity is Swedwood, which is the IKEA production firm.

Table 3 shows a group of the largest furniture producers in terms of net income from sold production, goods and materials in Poland, taking into account the type of ownership (in terms of the country of origin of the firms' capital) in 2012.

Table 3. The largest furniture producers (firms and groups) in terms of net income from sold production, goods and materials in Poland in 2012 by the type of ownership
Tabela 3. Najwięksi producenci mebli (firmy i grupy firm) w Polsce według przychodów netto ze sprzedaży produktów, towarów i materiałów w 2012 roku z uwzględnieniem formy własności

No. <i>Lp.</i>	Firm <i>Firma</i>	Net income [mio PLN] <i>Przychód netto</i> [mln PLN]	Polish capital <i>Kapitał polski</i>	Participation of foreign capital <i>Udział kapitału</i> <i>zagranicznego</i>
1	Swedwood Poland Sp. z o.o. <i>Swedwood Poland Sp. z o.o.</i>	3 997.3	–	✓
2	Black Red White Group <i>Grupa Black Red White</i>	1 550.0	✓	–
3	The Furniture Group Szynaka <i>Grupa Meblowa Szynaka</i>	682.3	✓	–
4	Com.40 Limited Sp. z o.o. <i>Com.40 Limited Sp. z o.o.</i>	625.1	✓	–
5	IMS Group <i>Grupa IMS</i>	458.0	–	✓
6	Nowy Styl Sp. z o.o. <i>Nowy Styl Sp. z o.o.</i>	440.2	✓	–
7	Furniture Factories Forte SA <i>Fabryki Mebli Forte S.A.</i>	434.4	✓	–
8	Dendro Poland Ltd. sp. z o.o. <i>Dendro Poland Ltd. sp. z o.o.</i>	335.9	–	✓
9	Hilding Anders Poland Sp. z o.o. <i>Hilding Anders Polska Sp. z o.o.</i>	316.6	–	✓
10	Furniture Factory Bodzio Sp. j. <i>Fabryka Mebli Bodzio Sp. j.</i>	309.8	✓	–

✓ – occurrence exists/*zjawisko występuje*

Source: Authors' own work based upon [Hryniewicki 2012] and firm websites

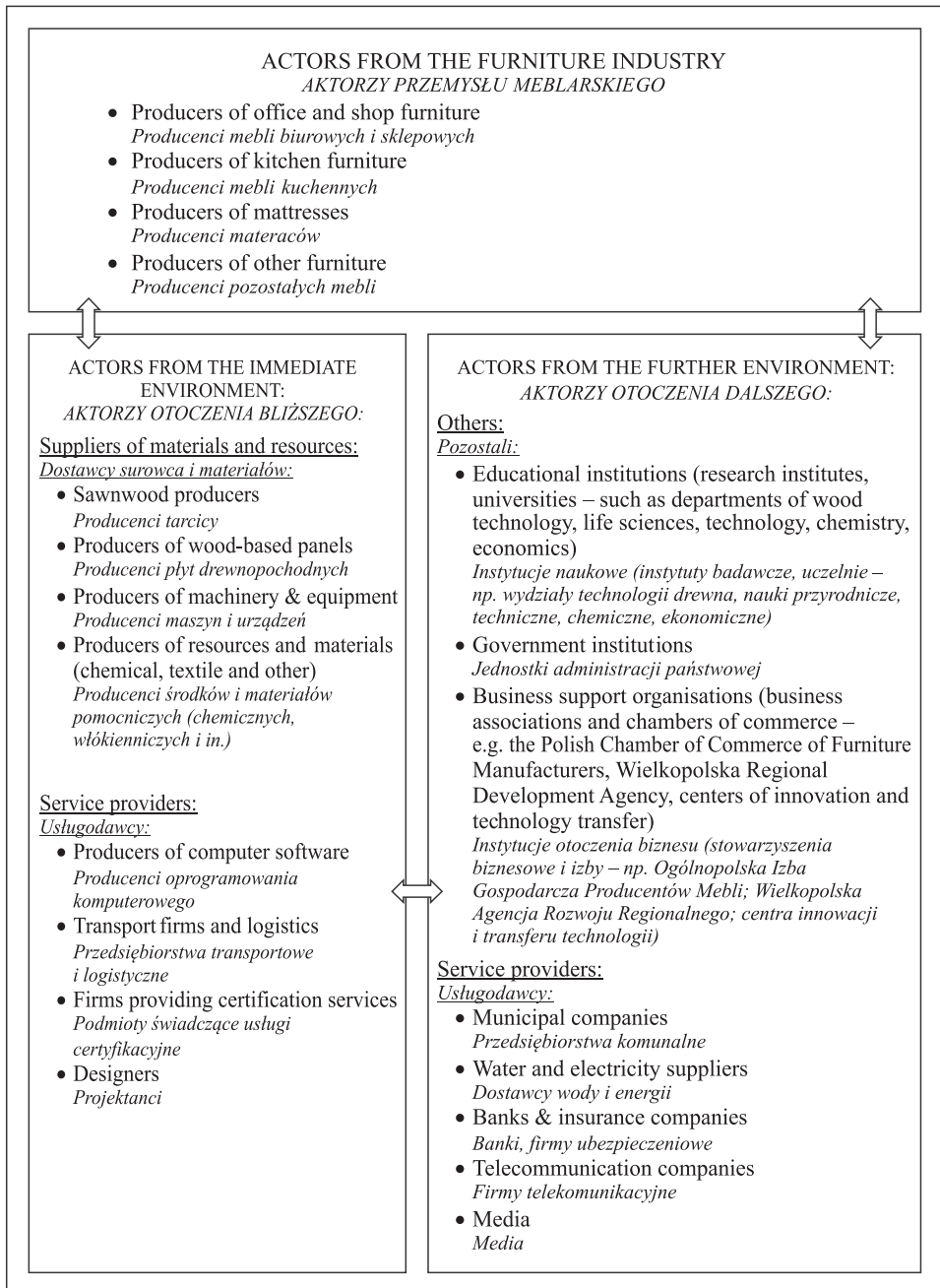
Źródło: Opracowanie własne na podstawie [Hryniewicki 2012] i stron internetowych firm

It is important to point out that among the 10 largest firms and groups producing furniture, 4 include foreign capital. This not only implies the possibility of utilising modern techniques and technologies thanks to higher levels of investment, but also the introduction of new management practices. It is estimated that medium and large enterprises are the most innovative and competitive furniture firms and it is they which attract the most foreign investment [Ratajczak 2009]. Moreover, it seems that international cooperation can, in comparison to local cooperation, generate additional benefits for a firm, including the transfer of advanced knowledge, good practices or know-how [Ratajczak-Mrozek 2012b].

The specifics of actors – the environment surrounding the furniture industry

Among the actors cooperating with furniture manufacturers are firms from both the wood sector (e.g. sawnwood producers, producers of wood-based panels) and other sectors (e.g. suppliers of tools, machinery & equipment, components and accessories, firms from the chemical and textile industries as well as IT). An attempt to identify all actors from the environment surrounding the furniture industry is presented in fig. 2.

The characteristics of the main actors, resources and interdependent activities which are important from the perspective of cooperation and networks in the furniture industry are shown in table 4.



Source: Authors' own work based upon [Ratajczak 2013]

Źródło: Opracowanie własne na podstawie [Ratajczak 2013]

Fig. 2. Actors from network structures surrounding the furniture industry

Rys. 2. Aktorzy struktur sieciowych w otoczeniu przemysłu meblarskiego

Table 4. Characteristics of the Polish furniture industry including actors, resources and activities
Tabela 4. Charakterystyka struktur stęciowych branży meblarskiej z uwzględnieniem aktorów, zasobów i działań

Type of entity Typ podmiotu	Actors Aktorzy	Resources Zasoby	Activities Działania
1	2	3	4
<p>Furniture industry: furniture producers & service providers (joiners & upholsterers)</p> <p>Branża meblarska: producenci mebli i usługodawcy (zakłady stolarskie, tapicerskie)</p>	<ul style="list-style-type: none"> - Large concentration of production in a few large firms shaping the furniture market, dominated by micro & small firms. - Large coefficient of sold production concentration. - Large production potential and reserves. - Firms with FSC CoC (Forest Stewardship Council Chain of Custody) and ISO (International Organisation for Standardisation) certificates are predominant. - Entities with foreign capital. - Small firms are less inclined to innovate. - Duża koncentracja produkcji w nielicznych dużych firmach kształtujących rynek mebli, przy dominacji mikro i małych przedsiębiorstw. - Duży wskaźnik koncentracji produkcji sprzedanej. - Duży potencjał produkcyjny i rezerwy w jego wykorzystaniu. - Znaczny udział firm posiadających certyfikaty kontroli pochodzenia produktu FSC CoC (Forest Stewardship Council Chain of Custody) oraz ISO (Międzynarodowa Organizacja Normalizacyjna). - Udział podmiotów z kapitałem zagranicznym. - Mniejsza podatność innowacyjna małych firm. 	<ul style="list-style-type: none"> - Differentiated level of modern equipment (less modern in smaller firms, whilst the most modern in firms with foreign capital). - Dependence on wood raw materials. - Zróżnicowany stopień nowoczesności aparatu wytwórczego (mniej nowoczesny w mniejszych przedsiębiorstwach, najbardziej nowoczesny w przedsiębiorstwach z kapitałem zagranicznym). - Zależność od surowca drzewnego 	<ul style="list-style-type: none"> - Sporadic utilisation of outsourcing despite the complex nature of production processes, applies especially to micro and small firms. - Little requirement amongst the actors forming the network (such structures are formed in most cases on a top-down basis). - Sporadyczne korzystanie z outsourcingu pomimo złożoności procesów produkcji, dotyczy to zwłaszcza mikro i małych przedsiębiorstw. - Mała potrzeba wśród samych aktorów tworzenia sieci (takie struktury tworzy się w większości przypadków z inicjatywy odbiorcy)

Table 4. Continued
Tabela 4. Ciąg dalszy

1	2	3	4
<p>Suppliers of resources and raw materials: sawmills <i>Dostawcy surowca i materiałów: przedsiębiorstwa tartaczne</i></p>	<ul style="list-style-type: none"> - Large dispersion of entities (around resource bases) often with small scales of production). - Significant production potential and unused reserves. - Little inclination to innovate. - <i>Duże rozproszenie podmiotów gospodarczych (wokół bazy surowcowej) o największej niewielkiej skali produkcji.</i> - <i>Znaczący potencjał produkcyjny i rezerwy w jego wykorzystaniu.</i> - <i>Mala podatność na innowacje</i> 	<ul style="list-style-type: none"> - Relatively low level of modernisation, utilised techniques and technologies. - High level of domestic self-sufficiency in terms of industrial roundwood supplies. - Small capital resources prevent firms from developing. - <i>Sosunkowo niski poziom nowoczesności aparatu wytwórczego, stosowanych technik i technologii.</i> - <i>Wysoki stopień krajowej samowystarczalności w sferze zaopatrywania w surowiec drzewny.</i> - <i>Małe zasoby kapitałowe przedsiębiorstw nie pozwalające na finansowanie rozwoju</i> 	<ul style="list-style-type: none"> - Low effectiveness in attracting foreign investors. - Despite the large dispersion of actors (especially small ones) and the common problem of obtaining raw materials, there is a limited inclination to form associations. - <i>Niska skuteczność w przyciąganiu inwestorów zagranicznych.</i> - <i>Mimo dużego rozproszenia aktorów; (zwłaszcza małych) i wspólnego problemu związanego z zaopatrzeniem w surowiec, niska skłonność do zrzeszania się</i>
<p>Suppliers of resources and raw materials: wood-based panels manufacturers <i>Dostawcy surowca i materiałów: producenci płyt drewnopochodnych</i></p>	<ul style="list-style-type: none"> - Relatively large share of entities with foreign capital with a strong dependence on this type of investment in the particle board production industry. - Significant production concentration. - Entities with a differentiated inclination to innovate in the production of various wood-based panels (low in the case of hardboard and plywood producers). - <i>Relatywnie duży udział podmiotów kapitału zagranicznego i duże uzależnienie od niego w branży płyt wiórowych.</i> - <i>Znaczna koncentracja produkcji.</i> 	<ul style="list-style-type: none"> - High level of self-supply of domestic wood raw material. - Utilisation of foreign technologies on a large scale (particularly in the case of the production of oriented strand boards (OSB) and medium density boards (MDF); limited use of self-developed technologies and products with a low degree of modernisation (e.g., the production of plywood). - Significant production potential and unused reserves (fibreboard, plywood). - Significant capital potential (mainly in the particle board industry) facilitating self-growth. 	<ul style="list-style-type: none"> - Attractive investment opportunities for foreign investors. - Cooperation with R&D facilities in the country of the origin of the capital at the expense of cooperation with domestic R&D facilities. - <i>Atrakcyjna oferta inwestycyjna dla inwestorów zagranicznych.</i> - <i>Współpraca z zapleczem badawczo-rozwojowym z kraju pochodzenia kapitału kosztem współpracy z krajowym zapleczem badawczo-rozwojowym</i>

Table 4. Continued
Tabela 4. Ciąg dalszy

1	2	3	4
<p>Suppliers of resources and raw materials: textile firms producing materials for upholstery <i>Dostawcy surowca i materiałów: przedsiębiorstwa włókiennicze produkujące materiały obiciowe</i></p>	<ul style="list-style-type: none"> - <i>Podmioty o zróżnicowanej podatności innowacyjnej w produkcji poszczególnych płyt drewnopochodnych (niska – zwłaszcza producentów płyt pilśniowych twarzych, sklejek)</i> 	<ul style="list-style-type: none"> - <i>Wysoki stopień samozaopatrzenia w krajowy surowiec drzewny.</i> - <i>Wykorzystywanie na dużą skalę zachodnich rozwiązań technologicznych (zwłaszcza w produkcji płyt wiórowych zorientowanych – OSB i suchofornowanych płyt pilśniowych – MDF); mało nowoczesne, nieliczne własne rozwiązania technologiczne i produktowe (przemysł sklejek).</i> - <i>Znaczny potencjał produkcyjny i rezerwy w jego wykorzystaniu (płyty pilśniowe, sklejki).</i> - <i>Znaczący potencjał kapitałowy (głównie w branży płyt wiórowych) służący samorozwojowi</i> 	<ul style="list-style-type: none"> - Inability to cooperate and utilise the effects of cooperation with competitors (cooperation) in order to increase the competitiveness of the industry. - <i>Nieumiejętność zrzeczenia się i wykorzystania efektów współpracy z konkurentami (kooperacja) do podnoszenia konkurencyjności branży</i>
	<ul style="list-style-type: none"> - Location of the entities is independent source of raw materials (the majority of the resource is imported from abroad). - Concentration of producers in large industrial centres (production is profitable on a large scale). - <i>Lokalizacja podmiotów niezależna od miejsca uprawy surowca (większość surowca sprowadzana z zagranicy).</i> - <i>Koncentracja wytwórców w dużych okręgach przemysłowych (produkcja optycalna w dużej skali)</i> 	<ul style="list-style-type: none"> - Dependence on imported raw material (linen is the only domestically-produced raw material). - Highly labour intensive industry. - Price competitive foreign products have a relatively large market share (among others, products from south-eastern Asia). - <i>Uzależnienie od importowanych surowców (w kraju uprawia się tylko len).</i> - <i>Przemysł wysoko pracochłonny.</i> - <i>Konkurencyjne cenowo produkty zagraniczne mające relatywnie duży udział w rynku (m.in. produkty z Azji Południowo-Wschodniej)</i> 	

Table 4. Continued
 Tabela 4. Ciąg dalszy

1	2	3	4
<p>Suppliers of resources and raw materials: the chemical industry, including producers of paint and varnish <i>Dostawcy surowca i materiałów: branża chemiczna, w tym producenci farb i lakierów</i></p>	<p>Firms with foreign capital. Dominance of medium and large firms (production profitable on a large scale). <i>Udział firm z kapitałem zagranicznym. Przewagę średnich i dużych firm (produkcja opłacalna w dużej skali)</i></p>	<p>Differentiated competitiveness of goods. The domestic resource base is not price competitive in comparison to imports. <i>Zróżnicowana konkurencyjność wyrobów. Krajowa baza surowcowa niekonkurencyjna cenowo w stosunku do surowców z importu</i></p>	<p>Significant share of imports in resources required for the production of upholstery materials. Close cooperation with the furniture industry which is the main recipient of the few efforts to form associations. <i>Znaczny udział importu surowców do produkcji materiałów obiciowych. Ścisła współpraca z meblarstwem będącym głównym odbiorcą przy nielicznych działaniach zmierzających do zrzeszeń</i></p>
<p>Suppliers of resources and raw materials: the chemical industry, including producers of paint and varnish <i>Dostawcy surowca i materiałów: branża chemiczna, w tym producenci farb i lakierów</i></p>	<p>Dominated by micro and small firms. Concentration of production in small and medium-sized firms. Relatively large share of foreign capital in firms. <i>Dominacja mikro i małych przedsiębiorstw. Koncentracja produkcji w średnich i dużych przedsiębiorstwach. Stosunkowo duży udział kapitału zagranicznego w firmach</i></p>	<p>Modern technological solutions in production and management processes. Qualified management team. Rich resource base. Differentiated level of potential among firms. <i>Nowoczesne rozwiązania technologiczne w procesach produkcji i zarządzania. Wykwalifikowana kadra. Zasobna baza surowcowo-materiałowa. Duże różnicowanie potencjału przedsiębiorstw</i></p>	<p>Large share of exports to EU countries. Significant share of imported paint and varnish for the furniture industry (as much as 70%). Large-scale production of intermediate goods utilised by numerous industry sectors – potential for exchange <i>Wysoki udział eksportu do krajów UE. Znaczny udział importu farb i lakierów dla branży meblarskiej (nawet 70%). Produkcja na dużą skalę półproduktów wykorzystywanych przez liczne działy przemysłu – potencjał wymiany</i></p>

Table 4. Continued
Tabela 4. Ciąg dalszy

1	2	3	4
<p>Suppliers of resources and raw materials: producers of furniture accessories</p> <p><i>Dostawcy surowca i materiałów: producenci akcesoriów meblowych</i></p>	<p>– Relatively small share of large firms with foreign capital.</p> <p>– Competitive sales representatives from foreign companies.</p> <p>– <i>Nieliczne duże firmy, wśród nich przewaga podmiotu z kapitałem zagranicznym.</i></p> <p>– <i>Konkurencyjne przedstawicielstwa handlowe firm zagranicznych</i></p>	<p>– A wide range of products offered and many possibilities for their application.</p> <p>– Products corresponding with the needs and tastes of foreign customers.</p> <p>– <i>Szeroki asortyment produkowanych wyrobów i duże możliwości ich zastosowań.</i></p> <p>– <i>Uwzględnianie w produkowanych wyrobach potrzeb i gustów odbiorców zagranicznych</i></p>	<p>– Lack of business support organisations reinforcing these companies.</p> <p>– Cooperation with the customers – both from the furniture industry and other industries.</p> <p>– Relatively limited activities focusing on forming associations, despite the relatively good potential conditions for cooperation.</p> <p>– <i>Brak instytucji otoczenia biznesu działających na rzecz tych przedsiębiorstw.</i></p> <p>– <i>Współpraca z odbiorcami nie tylko z meblarstwa, ale również z innych branż.</i></p> <p>– <i>Mala intensywność działań zmierzających do przeseń pomimo relatywnie dobrych, potencjalnych warunków współpracy z przedsiębiorstwami z innych branż</i></p>
<p>Suppliers of resources and raw materials: producers of machinery and equipment</p> <p><i>Dostawcy surowca i materiałów: producenci maszyn i urządzeń</i></p>	<p>– Specialised firms.</p> <p>– Producers of high-tech goods.</p> <p>– Relatively large share of foreign capital.</p> <p>– <i>Wyspecjalizowane firmy</i></p> <p>– <i>Producenci wyrobów high-tech.</i></p> <p>– <i>Relatywnie duży udział kapitału zagranicznego</i></p>	<p>– Elastic production lines (re-tooled thanks to computer software).</p> <p>– Equipment facilitating the automation and integration of production processes (e.g. Computerised Numerical Control – CNC).</p> <p>– <i>Elastyczne linie produkcyjne (przebrajane dzięki programom komputerowym).</i></p> <p>– <i>Urządzenia umożliwiające automatyzację i integrację procesów produkcji (np. Wielozynnościowe, komputerowo sterowane urządzenia numeryczne – Computerized Numerical Control – CNC)</i></p>	<p>– Increasing interest throughout the furniture industry in machinery and equipment increasing the automation and integration of production (potential for exchange).</p> <p>– <i>Coraz większe zainteresowanie meblarstwa maszynami i urządzeniami zwiększającymi automatyzację i integrację produkcji – potencjalnymi wymiany</i></p>

Table 4. Continued
Tabela 4. Ciąg dalszy

1	2	3	4
<p>Service providers: designers <i>Usługodawcy:</i> <i>design</i></p>	<ul style="list-style-type: none"> - Firms providing services based upon knowledge of changing market trends; often modelled on the experiences of international entities. - Creation of new business entities. - <i>Przedsiębiorstwa świadczące usługi w oparciu o znajomość zmieniających się na rynku trendów; często wzorowanie się na doświadczeniu podmiotów międzynarodowych.</i> - <i>Powstawanie nowych podmiotów</i> 	<ul style="list-style-type: none"> - Specialised computer software facilitating the provision of design services. - <i>Wyspecjalizowane oprogramowanie umożliwiające świadczenie usług z zakresu design</i> 	<ul style="list-style-type: none"> - Growing importance of the use of this type of service in the furniture industry. - <i>Rosnące znaczenie korzystania z tego rodzaju usług w meblarstwie</i>
<p>Service providers: transport firms and logistics <i>Usługodawcy:</i> <i>firmy transportowe,</i> <i>logistyczne</i></p>	<ul style="list-style-type: none"> - Large differentiation of entities in terms of their size and the quality of services provided (large competitive firms providing holistic logistics services). - Foreign capital is present especially in the case of large firms. - <i>Duże różnicowanie podmiotów pod względem ich wielkości i jakości świadczonych usług (konkurencyjne duże firmy świadczące kompleksowe usługi spedycyjne).</i> - <i>Udział kapitału zagranicznego, zwłaszcza w dużych firmach</i> 	<ul style="list-style-type: none"> - Ability to mechanise and automate the whole or part of the services provided (e.g. loading vehicles). - Less developed fleet among smaller transport firms. - <i>Możliwość zmechanizowania i zautomatyzowania całości lub fragmentu świadczonych usług (np. ułożenie ładunku w samochodzie).</i> - <i>Mało rozwinięta flota samochodowa mniejszych firm spedycyjnych</i> 	<ul style="list-style-type: none"> - Low level of activity in the case of small, often domestic firms (lack of an EU presence). - Use of network structures among firms in order to provide a wide range of services (developed logistics centers). - <i>Niski poziom działań wśród mniejszych często krajowych podmiotów (brak przedstawicielstw w UE).</i> - <i>Wykorzystywanie przez duże firmy struktur sieciowych do świadczenia szerokiego zakresu usług (rozwinięte centra logistyczne)</i>
<p>Service providers: software suppliers (IT industry) <i>Usługodawcy:</i> <i>dostawcy</i> <i>oprogramowania</i> <i>(branża IT)</i></p>	<ul style="list-style-type: none"> - High-tech firms. - <i>Firmy high-tech</i> 	<ul style="list-style-type: none"> - Modern software which can be utilised at each stage of the production and management processes in the furniture industry. - <i>Nowoczesne oprogramowanie mogące być wykorzystane na każdym etapie produkcji i zarządzania w meblarstwie</i> 	<ul style="list-style-type: none"> - Broad range of services and activities influencing the innovativeness of production and management processes in the furniture industry. - <i>Szeroki zakres usług i poziom działań wpływający na innowacyjność procesów produkcji i zarządzania w meblarstwie</i>

Table 4. Continued
Tabela 4. Ciąg dalszy

1	2	3	4
<p>Others: surrounding business environment and government institutions <i>Pozostali: instytucje otoczenia biznesu, administracja państwowa</i></p>	<p>– Entities which often operate at a regional level. – <i>Podmioty często o regionalnym zakresie działania</i></p>	<p>– Relatively small capital resources. – High level of market knowledge. – <i>Relatywnie małe zasoby kapitałowe.</i> – <i>Wysoki poziom wiedzy rynkowej</i></p>	<p>– Active participation among actors in network structures in the furniture industry. Often, actors are the coordinators of the network. – Relatively limited interest among furniture firms to cooperate with these actors (often the result of limited knowledge regarding the benefits of such cooperation). – <i>Aktywne uczestniczenie aktorów w strukturach sieciowych w meblarstwie, często nawet pełnienie roli koordynatora sieci.</i> – <i>Relatywnie małe zainteresowanie firm meblarskich współpracą z tymi aktorami (często wynikające z braku wiedzy o potencjalnych korzyściach)</i></p>
<p>Others: R&D centres & institutions of higher education <i>Pozostali: ośrodki badań i rozwoju, szkoły wyższe</i></p>	<p>– Very experienced entities with many years of tradition. – <i>Podmioty o wieloletniej tradycji i dużym doświadczeniu</i></p>	<p>– Qualified management. – Developed R&D capabilities. – High level of knowledge. – Access to international know-how. – <i>Wyszkolifikowana kadra.</i> – <i>Rozwinięte zaplecze badawcze.</i> – <i>Wysoki poziom wiedzy.</i> – <i>Dostęp do międzynarodowego know-how</i></p>	<p>– Presence of entities in the structures of furniture networks, sometimes in the role of coordinator. – Relatively limited interest among furniture firms to cooperate with these actors. – Increasing frequency of cooperation with international centres. – <i>Obecność podmiotów w strukturach sieciowych w meblarstwie, czasami pełnienie roli koordynatora.</i> – <i>Relatywnie małe zainteresowanie firm meblarskich współpracą z tymi aktorami.</i> – <i>Coraz częstsza współpraca z ośrodkami międzynarodowymi</i></p>

Source: Authors' own work based upon [Figielek et al. 2001; Ratajczak et al. 2003; Ratajczak 2009; Ratajczak 2010; CSO 2013b]

Źródło: Opracowanie własne na podstawie [Figielek et al. 2001; Ratajczak et al. 2003; Ratajczak 2009; Ratajczak 2010; CSO 2013b]

The specifics of resources and activities

In addition to the information presented in table 4, it should be stressed that the basic resources which define the characteristics of the furniture industry are wood materials, of which this industry is a key recipient. Above all these are wood-based panels and sawnwood. These are mainly domestic raw materials (in 2012, 93% of the total demand for wood raw materials throughout the Polish economy was covered domestically [WTI estimates]). For this reason, the furniture industry is strongly dependent on the availability and prices of these wood resources, both directly as a recipient and also indirectly as an end-user of wood (sawnwood and wood-based panels). The reliance of the furniture industry on a natural resource means that there is limited potential for technical advances as well as mechanisation of the work. This natural resource is susceptible to a relatively simple form of processing which limits the potential for introducing modern technologies. However, conversely, the ecological characteristic of wood raw materials promotes the need for new processes and refined products [Ratajczak 2009]. Simultaneously, the relatively low R&D intensity is the reason why the furniture industry is a low-technology industry (a so-called traditional industry) [Hatzichronoglou 1997].

Another important resource used in the furniture industry is production machines. It is at this point worth noting the high-technology flow relationship directed at the furniture industry. It is estimated that the most modern production machinery and the highest level of technology is present in furniture produced for rooms, bedrooms, offices and kitchens especially in medium and large enterprises [Ratajczak 2009].

Computer software is also classified as high-technology and plays an important role in furniture firms. Not only can it improve production processes but it also creates the possibility of customising products as per individual customer requirements. This means that there is a drive towards limiting the activity of buffer stocks in favour of producing made-to-order furniture based upon technological lines. In effect, finished furniture components are generally prepared in machining centres and automatically fed in to computer controlled production lines [Ratajczak 2009].

Solutions delivered by the IT industry provide for a wide range of applications in the furniture industry both as a result of the utilisation of software by employees as well as through the relationships with external actors – logistical firms [Gackowska 2013].

Whilst analysing the resource interdependencies in the context of utilised resources, materials and software, it is possible to observe the nature of the activity interdependencies in the form of specificities of the production process. It should be underlined that the multistage furniture production process creates a basis for utilising outsourcing services which are popular on the market. The complex na-

ture of the furniture production process characterised by a large number of collaborators, complicated supply logistics and multifaceted relationships implies network links with the various actors presented in fig. 2 and table 4 which in turn influences the network structures operating in the industry. However, it has to be underlined that within the furniture industry network, resources are mainly created individually and then implemented by particular firms from the furniture industry. Generally, cooperation is based on long-term transactional exchange and adaptation of bought input resources and not on mutual adaptation or mutual creation of resources. The exemption may be the production of tailor-made products for individual customer orders requiring e.g. the development of new technical solutions or parts in collaboration with suppliers. Conducive conditions for joint activities are also present among the members of business support organisations, e.g. Centre for Innovation and Technology Transfer For the Furniture Industry in Poznan. Commercialisation of research results and technology transfer to industry involves the resources of many actors and contributes to joint operations.

Both joint creation of resources and joint activities represent an important and desired direction in the development of the furniture industry. Moreover, an analysis of the activities undertaken by actors from the furniture industry points to the significant potential in terms of poorly-developed relationships, specifically in the case of the main actors within the furniture industry, when cooperating with actors from the surrounding business environment. The dominance of micro and small firms in the furniture industry in the entity structure of this industry should also encourage the more efficient utilisation of their ability to flexibly adapt to changes and as a result to diversify their operations.

Conclusions

The cooperation and network relationships between entities from the surrounding business environment in the case of the furniture industry can influence the stable development of individual firms as well as the industry as a whole. Relationships can generate a wide range of benefits which otherwise would remain unattainable for independently-operating, individual micro and small firms (these types of firms are dominant in the industry).

The main contribution of the article is in highlighting the specific nature of the furniture industry from the perspective of the ARA model, and in particular in identifying the main entities within the industry, the surrounding business environment as well as their characteristics. The analysis is not limited solely to entities from a given industry so to include some significant factors influencing it – both in a positive and negative sense. This is especially important in the case of the industry at hand. In the opinion of specialists, furniture production is still characterised by a very limited degree of cooperation, including but not limited to R&D institutions which are the creators of innovation. Thus the analysis of

the nature of resources and activities in the case of this industry, as well as their utilisation through cooperation with actors can significantly impact the stable development of the furniture industry.

The analysis carried out within the article is not free of certain limitations which simultaneously lay the foundations for future research. The analysis of the specifics of the furniture industry consistent with the ARA model constitutes a certain conceptual framework which provides for future analysis of relation complexities of a single firm as well as a whole industry. Moving forward, it is advisable that a more detailed analysis is carried out regarding the identification of potential network structures within the given industry, as well as measurement of the degree of networking in the Polish furniture industry.

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SPECYFIKA POLSKIEGO PRZEMYSŁU MEBLARSKIEGO W UJĘCIU SIECIOWYM. PERSPEKTYWA MODELU ARA (AKTORZY-ZASOBY-DZIAŁANIA)

Streszczenie

Ważne korzyści otrzymywane dzięki współpracy i relacjom sieciowym są istotne zarówno z perspektywy samych przedsiębiorstw (z powodu chociażby poprawy wyników rynkowych), jak i konkretnych przemysłów czy całej gospodarki (poprawa konkurencyjności). Z tego powodu identyfikacja potencjału sieciowego na poziomie konkretnego przemysłu wraz z analizą jego specyfiki w ujęciu sieciowym jest również istotna dla wspierania więzi regulacyjnych dotyczących danej dziedziny gospodarki.

W związku z powyższym celem artykułu jest identyfikacja specyfiki – ważnego dla polskiej gospodarki – przemysłu meblarskiego z wykorzystaniem podejścia sieciowego i dzięki temu wskazanie istotnych podmiotów, a także zależności w zakresie zasobów i działań, wywierających wpływ na ten przemysł.

W prezentowanej analizie wykorzystano model ARA (Actors-Resources-Activities), który jest jednym z podstawowych modeli stosowanych do analizy zależności w podejściu sieciowym.

W efekcie możliwe było wskazanie specyfiki omawianego przemysłu zgodnie z modelem ARA (w zakresie podmiotów, zasobów i działań), a w szczególności zidentyfikowanie głównych podmiotów przemysłu i otoczenia oraz ich charakterystyki. Jest to o tyle ważne, że ograniczanie analiz wyłącznie do podmiotów z danego przemysłu powoduje pominięcie istotnych czynników wywierających na niego wpływ – zarówno pozytywny, jak i negatywny. Dokonana analiza specyfiki przemysłu meblarskiego z wykorzystaniem modelu ARA stanowi pewien schemat koncepcyjny, który ma dać podstawę do przyszłych analiz z zakresu złożoności relacji poszczególnych przedsiębiorstw oraz całego przemysłu.

Słowa kluczowe: sieć biznesowa, podejście sieciowe, relacje sieciowe, współpraca, model ARA, przemysł meblarski, otoczenie przemysłu meblarskiego

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