The Role of the Intellectual Potential of Employees in Creating the Goodwill of a Teaching Hospital

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Abstract: Hospitals are medical entities providing health services to patients. The dominant share of labour costs in the cost structure of the healthcare entity is evidence of the critical role of employees in a hospital's activities. Specialized medical staff provide medical services and educate future medical staff, while also conducting clinical trials and supporting the development of medical technologies. The article aims to recognize the impact of the intellectual potential of employees on creating goodwill in a teaching hospital. The inference was made based on the financial data available on hospital employees' income and labour costs as factors in the development of the goodwill of a teaching hospital. The following research questions were posed: whether the existing legal regulations regarding the financing of the activities of teaching hospitals in Poland, including the costs of medical staff, are conducive to the creation and development of goodwill of teaching hospitals; whether the ratio of the value of operating revenues to labour costs can be considered as a determinant of the increase in the goodwill of a teaching hospital. The research was conducted based on reporting data for 2018 - 2019 involving selected teaching hospitals as the basic units associating high-class medical specialists. The research was empirical and based on quantitative and qualitative data. The analyses were of an expert nature, from the perspective of a statutory auditor and a long-term researcher of the problems of the functioning of medical entities - hospitals. The preliminary findings indicate that the intellectual capital of teaching hospitals is crucial in creating and developing the goodwill measured by the ratio of the value of operating revenues to labour costs. The considerations undertaken in the article are an essential voice in recognizing the conditions for developing hospitals as entities with intellectual capital that is helpful in solving health problems on an international scale. The article is a continuation of the author's research on the development of intellectual capital of employees of teaching hospitals in Poland.

Keywords: Intellectual potential of hospital employees, Salaries of physicians, Hospital management, Knowledge workers in hospitals, Goodwill

1. Introduction

Ownership transformations in healthcare entities pose new challenges in the valuation of assets, liabilities, costs and revenues. The Polish legislation provides for the transformation of medical entities, including the liquidation of an entity, merger of several entities, and transformation of an independent public health care institution into a capital company. If the transformation of a medical entity into a capital company is carried out in accordance with the Law on Medical Activities, the closing balance sheet of the independent public healthcare institution becomes the opening balance sheet of the company, with the sum of equity equal to the sum of the founding fund, the establishment fund, the revaluation fund, and the retained earnings for the period of operation of the entity before the transformation. Teaching hospitals operating as independent public healthcare institutions may also be transformed into capital companies. However, this requires the approval of the minister of higher education and science and the minister of health. Goodwill is disclosed in buy-sell processes, business mergers, and consolidated financial statements. These events are possible in medical entities after their transformation into capital companies.

Medical entities in Poland provide health services by employing high-class specialists (doctors). Their education and the obligation of continuing education make the intellectual potential of employees of medical entities, especially hospitals, their most important resource.

Revenues obtained from providing health services and other tasks contribute to the development of the hospital, increasing its importance in the health care system. By employing staff with high intellectual potential, the hospital can apply for contracts with the payer (Narodowy Fundusz Zdrowia - NFZ). The increase in the value of contracts is associated with higher hospital revenues. It can also make it an attractive place of employment and education for future medical staff, thus increasing the organisation's value.

2. Goodwill of a Hospital Literature Review

In the era of globalization, with the economy increasingly based on knowledge, the concept of goodwill has changed its meaning. While defining goodwill, it is necessary to take into account several factors and microeconomic and macroeconomic determinants, while also the conditions of the functioning of business entities. Goodwill is perceived differently. Selected opinions and definitions are shown in Table 1.
Table 1: The Essence of Goodwill

<table>
<thead>
<tr>
<th>Source</th>
<th>Characteristics of goodwill</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accounting Act</strong></td>
<td>The difference between the purchase price of a specific entity or its organized part and the lower (than this price) fair value of the net assets acquired.</td>
</tr>
<tr>
<td><strong>IAS 38</strong></td>
<td>Differences between an entity's fair value and the balance value of its net assets identifiable at any time may result from a number of factors that affect the entity's fair value.</td>
</tr>
<tr>
<td><strong>Pratama, Pangiarti (2023), p. 30</strong></td>
<td>Goodwill is the difference between the payments made to the company and the net fair value of the identified acquired assets.</td>
</tr>
<tr>
<td><strong>Chelba, Melega, Grosu (2023), p. 526</strong></td>
<td>Goodwill is seen as the ability of the entity to produce a profit, which derives either from specific factors capable of contributing positively to the generation of income (being obtained over time, for a consideration, not having an independent value) or by increasing the value of the whole set of assets that the entity owns in relation to the value of each individual asset.</td>
</tr>
<tr>
<td><strong>E.A. Hendriksen and M.F. van Breda (2002), pp 635-636</strong></td>
<td>The value of intangible assets attributed to a business entity that are not reported as assets but explain the goodwill, which results from favourable attitudes toward the company (e.g., good customer relations, reputation).</td>
</tr>
<tr>
<td><strong>Jennings, LeClere and Thompson (2001), p. 20</strong></td>
<td>The difference between the value of a company's ownership interest and the fair value of its identifiable net assets represents comparative advantages that are expected to enable the company to generate earnings in excess of a 'normal' return on investment.</td>
</tr>
<tr>
<td><strong>Kamela-Sowińska (1996), p. 9, 31</strong></td>
<td>An intangible asset, independent of the cost of its production, attributed to the enterprise operating on a going concern basis, which does not exist outside the enterprise.</td>
</tr>
</tbody>
</table>

Source: Self-analysis based on literature.

Strojek-Filus argues that important sources of goodwill include the undervaluation of assets, the human factor (employee qualifications), social factors (employee relations), market factors and technological factors (Strojek-Filus, 2013).

Similar to the definitions of goodwill, different classifications of goodwill have been used. From the point of view of the subject undertaken in the present study, it is important to divide goodwill into the following:

- acquired goodwill (disclosed in balance sheet assets) and
- internal goodwill (not disclosed in a financial statement).

Acquired goodwill can be considered from the point of view of its type as personal goodwill, goodwill from a collection of assets, while also goodwill on consolidation (Ignatowski, 1995).

The absence of buy-sell transactions in independent public healthcare institutions justifies a greater emphasis on the identification of goodwill internally generated in hospitals as the sum of the components that determine the strength and quality of a healthcare entity in the healthcare market.

The biggest theoretical and practical problem in medical entities is the determination of the structure of goodwill and linking it to other assets. These problems concern not only the identification of goodwill but, more importantly, its valuation.

Reilly states that a prerequisite for the valuation of intangible assets is to understand the reason for their creation (Reilly , 2015).

The timing of goodwill is also difficult to determine. It cannot be unequivocally identified as a long-term factor in creating company success. The assessment of an entity's ability to achieve economic benefits on a goodwill basis can change. According to IAS 38, internally generated goodwill is not recognized as an asset because it does not meet the basic conditions for such separation (identification, valuation, lack of control) (IAS 38, item 49). An unquestionable factor in creating internal goodwill is a highly skilled staff, which constitutes intellectual capital. It is a source of competitive advantage and determines the company's reputation. This is confirmed by the opinions of such researchers as Falk, Gordon (1977), Low, Kalafut (2006).
The intellectual capital of a hospital’s employees can be defined as an intangible resource, the potential of employees, resulting from their education, knowledge, experience, and talent. Recognising the impact of intellectual capital on creating a company’s value in teaching hospitals can affect conscious and effective talent management (Mitosis et al., 2021; Ingram, Glod, 2016; Stuss, 2021; Bonneton et al., 2019). Selected definitions of intellectual capital related to its relationship with goodwill are presented in Table 2.

### Table 2: Selected Definitions of Intellectual Capital

<table>
<thead>
<tr>
<th>Author</th>
<th>Concept/Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayatollahi, Zeraatkar (2020), p. 100</td>
<td>In healthcare organisations, KM processes can be represented as three subprocesses: knowledge generation or creation, knowledge codification or storage and retrieval, and knowledge transfer/realisation or knowledge transfer/application.</td>
</tr>
<tr>
<td>Chang, Chen, La (2008), p. 300</td>
<td>Intellectual capital represents the knowledge-related intangible resources of a firm and consists of three essential elements: structural, human, and relational capital.</td>
</tr>
<tr>
<td>Herman (2008), p. 41</td>
<td>Intellectual capital consists of three elements: human capital, structural capital, and customer capital, also known as relational or social capital.</td>
</tr>
<tr>
<td>Bontis et al. (1999), p. 397</td>
<td>Intellectual capital has attributes that contribute to the value of the company. It is a set of intangible resources and methods of their transformation. Intangible resources are all factors related to the processes that contribute to the growth of the company's value.</td>
</tr>
<tr>
<td>Nahapiet, Ghoshal (1998), p. 245</td>
<td>Intellectual capital is knowledge and its associated potential and social capabilities such as organisation, intellectual community, skills, and work experience.</td>
</tr>
<tr>
<td>Roos, Roos (1997), p. 415</td>
<td>Intellectual capital is the sum of a company's hidden assets not included in its financial statement, including what is in employees' minds and what is left when they leave.</td>
</tr>
</tbody>
</table>

Source: author’s study based on literature.

Various researchers have commented on the impact of intellectual capital on company value (Luthfiani, Suryani, 2022; Foltys et al., 2021; Kucharska, 2022; Scafarto et al., 2023). However, they did not propose specific measures to quantify this impact. Instead, their focus was on the role of human capital in fostering innovation and competitiveness. With its employees' high intellectual potential, the teaching hospital secures numerous health and other specialised services contracts. These contracts increase revenues from the hospital's primary operational activities.

New, increasingly larger contracts and tasks lead to an increase in employees' salaries. The fact that revenues are growing more rapidly than salaries suggests increased work efficiency, which can be regarded as a company value source. These relationships are considered in the author's attribution of the increase in the teaching hospital's value, as presented in this article.

### 3. Methodology of the research Characterization of the Research Object

The aim of the paper is to assess the effect of the intellectual potential of employees on the creation of goodwill in a teaching hospital. Inference was made based on the financial data available on the formation and growth of incomes and labour costs of hospital employees as factors in developing the goodwill of a teaching hospital.

The following research questions were asked in the study:

- Are the existing legal regulations on financing the operations of teaching hospitals in Poland, including the labour costs of medical staff conducive to the emergence and development of the goodwill of teaching hospitals?
- Can the ratio of the value of operating income to labour costs be considered a determinant of the growth of goodwill in a teaching hospital?

The research process consisted of the following steps:

- analysis of legal acts on the rules of operation of teaching hospitals,
assess assessment of the role of the intellectual capital of employees of teaching hospitals in the creation of competitive advantage in the market of health services (literature review, review of the websites of teaching hospitals, synthesis),

• obtaining data from financial statements from the National Court Register (selection of data from profit and loss accounts, additional information, other reporting data),

• compilation and selection of selected data that characterize the costs of human resources (labour costs), revenues from the sale of health services,

• the use of selected measures of structure and dynamics to characterize the relationship between the analyzed revenues and costs of human resources; expert analysis of data from financial statements.

• analysis of conclusions of selected areas of research conducted by the author in previous years on the financial statements of hospitals and the intellectual capital of hospital employees,

• conclusion of the study.

Of the 29 teaching hospitals in Poland, 10 were selected for analysis. The founding bodies of these hospitals are medical universities or local governments. There is one teaching hospital in Poland in the form of a limited liability company, while other teaching hospitals are independent public healthcare institutions. The entities were included in the study based on the possibility to obtain complete financial data on the entity in the form of financial statements, particularly the profit and loss account and additional descriptive information in 2018-2019. The choice of the period of the study was dictated by the operating conditions of teaching hospitals. In subsequent periods, teaching hospitals carried out tasks aimed at combating the COVID-19 pandemic. Basic activities were limited as hospital resources were used to treat COVID-19 patients. Revenue from operations during these periods was also spent on treating patients with COVID-19. The choice of such data as labour costs of employees and revenues from the sale of medical services for the analysis resulted from the fact that the parameter of the increase in goodwill in the form of financial performance, due to the generally low profitability of medical entities and negative net asset values, was considered to be not very precise.

Teaching hospitals are distinguished among medical entities not only by the type of specialized health services but also by important tasks of training medical staff, teaching, research, consultation, opinion-forming and other tasks assigned by scientific institutions, local government units, or central authorities. Hospitals are allowed to conduct business activities if they do not impede the basic tasks for which they are established. Such a wide range of activities and educational, research, and scientific tasks determine a very high level of knowledge and skills of medical staff, which was the reason for choosing this group of medical entities selected as subjects of the study. Teaching hospitals provide a knowledge management environment for intellectual capital (Bose, 2003). Employees at teaching hospitals are constantly developing their intellectual potential. This is a long-term strategic activity.

4. Results: A Proposal for a Teaching Hospital’s Goodwill Growth Attribute

The Polish legal regulations stipulate both the rules of practicing medical professions, education of doctors, acquiring certificates to be licensed to practice a profession, professional responsibility, but also the working time and ways of calculating salaries in medical entities. For this reason, explicitly linking the labour costs of doctors to the creation of goodwill is difficult. Salaries and other labour costs of medical employees of teaching hospitals depend on the level of education, specialty training, titles and degrees, and managerial and administrative functions. With employment contracts, there is a significant relationship between the creation of intellectual capital of employees and the increase in goodwill. As the practical experience of selling medical practices in the United States shows, the personal goodwill transferred as part of the transaction has significant value. It stems from the doctor’s specialized knowledge, specialization, reputation, and professional standing. Personal goodwill can reach a significant level in the sales value structure. Appraisers utilize three approaches to value the personal goodwill of selling physicians. The two primary approaches are the “with and without method” and the multi-attribute utility model. The third method is the residual method, in which the other assets of the practice, both tangible and intangible, are identified and valued, with the residual value representing personal goodwill (Levin et al., 2022).

The analyses performed in the present paper are in line with the concept of the “Multi-attribute Utility Model” as a complement to valuation attributes.

Teaching hospitals in Poland earn revenue from the sale of health services based on contracts with the payer, namely, the National Health Fund. The contract is contingent on having qualified medical staff and specialized equipment. Medical staff requirements mean that the professional competence and intellectual potential of
medical staff determine the increase in revenue from core activities. Complementary sources of financing operations include the implementation of paid health services, separate business activities, grants, while also funds from the European Union, among others. The salaries of medical employees and their mode of work are regulated by several legislative acts. These regulations stipulate both the rules of practicing particular medical professions, education, acquiring certificates to be licensed to practice a profession and professional responsibility, but also working time and ways of calculating salaries, including the way of calculating the lowest salaries of employees working for medical entities. The managers of teaching hospitals increased employees’ salaries during the 2018-2019 period under review. In the nine hospitals analyzed, the increase was more than 10%. Other labour costs were also increasing similarly. Operating income and labour costs at teaching hospitals are presented in Table 3.

Table 3: Revenues and Labour Costs in Teaching Hospitals

<table>
<thead>
<tr>
<th>Teaching hospital</th>
<th>Revenues (thousand PLN)</th>
<th>Labour costs (thousand PLN)</th>
<th>Increase in revenue (%)</th>
<th>Increase in labour costs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>2018</td>
<td>2019</td>
<td>2018</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>109,944</td>
<td>100,751</td>
<td>78,158</td>
<td>65,672</td>
</tr>
<tr>
<td>2</td>
<td>89,029</td>
<td>77,044</td>
<td>76,357</td>
<td>64,323</td>
</tr>
<tr>
<td>3</td>
<td>126,898</td>
<td>111,147</td>
<td>71,974</td>
<td>59,970</td>
</tr>
<tr>
<td>4</td>
<td>287,437</td>
<td>264,773</td>
<td>129,147</td>
<td>115,176</td>
</tr>
<tr>
<td>5</td>
<td>447,366</td>
<td>402,110</td>
<td>253,600</td>
<td>219,827</td>
</tr>
<tr>
<td>6</td>
<td>535,304</td>
<td>458,222</td>
<td>239,707</td>
<td>204,411</td>
</tr>
<tr>
<td>7</td>
<td>122,235</td>
<td>101,584</td>
<td>71,357</td>
<td>59,813</td>
</tr>
<tr>
<td>8</td>
<td>713,598</td>
<td>631,781</td>
<td>341,513</td>
<td>302,696</td>
</tr>
<tr>
<td>9</td>
<td>474,342</td>
<td>447,044</td>
<td>252,661</td>
<td>205,019</td>
</tr>
<tr>
<td>10</td>
<td>447,862</td>
<td>413,487</td>
<td>199,613</td>
<td>173,665</td>
</tr>
</tbody>
</table>

Source: Self-analysis.

During the periods studied, 8 hospitals showed an increase of 1-10% in the number of employees. As the data in Table 3 shows, revenues from the sale of healthcare services and labour costs were on the increase. The rate of this increase can be considered in a similar way. Using the ratio of revenue from the sale of health care services to total labour costs as an indicator for measuring labour cost efficiency, these costs in the teaching hospitals studied are shown in Table 4. Trends in changes in the value of revenue per employee are also presented.

Table 4: Labour Cost Efficiency Indicators

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Labour cost efficiency (%)</th>
<th>Increase (%)</th>
<th>Revenue per employee (thousand PLN)</th>
<th>Increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>141</td>
<td>153</td>
<td>92</td>
<td>104.31</td>
</tr>
<tr>
<td>2</td>
<td>117</td>
<td>120</td>
<td>97</td>
<td>89.66</td>
</tr>
<tr>
<td>3</td>
<td>176</td>
<td>185</td>
<td>95</td>
<td>137.19</td>
</tr>
<tr>
<td>4</td>
<td>223</td>
<td>230</td>
<td>97</td>
<td>175.48</td>
</tr>
<tr>
<td>5</td>
<td>176</td>
<td>183</td>
<td>96</td>
<td>154.96</td>
</tr>
<tr>
<td>6</td>
<td>223</td>
<td>224</td>
<td>100</td>
<td>175.91</td>
</tr>
<tr>
<td>7</td>
<td>209</td>
<td>209</td>
<td>100</td>
<td>207.38</td>
</tr>
<tr>
<td>8</td>
<td>188</td>
<td>218</td>
<td>86</td>
<td>187.71</td>
</tr>
<tr>
<td>9</td>
<td>224</td>
<td>238</td>
<td>94</td>
<td>140.97</td>
</tr>
</tbody>
</table>

Source: Self-analysis.
A greater increase in the ratio of revenue per employee than in the ratio of revenue to labour costs means that there was a significant increase in labour costs in the period under study. The increase in revenue per employee confirms the motivational effect of the salary increase and, at the same time, the increase in the effectiveness of employees whose work and competence affected the increase in revenue.

In the hospitals studied, the mean salaries were higher than for the entire healthcare system in Poland. This fact showed that managers of teaching hospitals appreciated the increase in the professional competence of employees and motivated for further professional development of the staff.

A positive trend of the analyzed processes is the simultaneous increase in salaries and operating income. This demonstrates the development of the intellectual potential of the medical staff of teaching hospitals and the ability of this potential to stimulate revenue from providing health services.

As the data in the tables demonstrate, the efficiency of labour costs remains relatively consistent, indicating that revenue increases proportionally with the rise in labour costs. This scenario benefits all involved: the employees see their efforts duly compensated, the company’s value rises, and the institution as a whole develops.

It would be detrimental if salaries were to increase while revenues remained static. Equally unfavourable would be a situation where revenues grew faster than salaries. This would imply that the efforts made by employees to generate increased revenues are not being rewarded appropriately. Such a situation could potentially result in employees being less inclined to engage in activities promoting the development of the entity and their professional growth.

The trends observed in the teaching hospitals studied and in other hospitals were similar with respect to the scope and type of operations, education of the medical staff, and legislative basis of hospital activity.

5. Discussion on Results and Implications for Practice

Linking goodwill to the intellectual capital of teaching hospitals must take into account the legal regulations of the health care system in terms of financing health services and the practice of the medical profession. Systemic conditions limit the legibility of the relation in terms of the development of human capital, goodwill, and the impact of these factors on the financial status of medical entities. This is due to the limited financial resources of the health care system, the limitation of the working time of medical personnel, and the statutory method of calculating the minimum wages of medical entities. Macroeconomic determinants also affect trends. These include globalization, pandemics, the development of information technology, while also national and international health policies.

Observation of the organizational and legal transformations of the health sector in Poland reveals a trend of restructuring aimed at reducing the employment of medical staff to save labour costs or change forms of employment. Such measures result only in short-term savings. This does not have the expected effect of improving the financial status of entities in the long term.

One example is the effects of the change in the legal forms of medical entities in Poland between 2011 and 2014. Most independent public healthcare institutions were transformed into capital companies by 2014. At the time, 174 hospitals, accounting for 16% of their population, changed their legislative forms. Of the 49 hospitals studied, 38 reported a net loss, while the remaining 11 recorded a profit. The total revenues of the companies increased by 9.06% from 2011 to 2013. Total costs increased by 7.19% during this period, whereas salary costs increased by 2.85%. The ratio of salary costs to total costs decreased to 43.32%. To reduce the costs of hospital companies, the form of employment of medical staff was changed by abandoning employment contracts in favour of civil law contracts. The average employment in hospitals decreased by 6.25%. Reducing the number of employees and changing the form of employment was motivated by lower employment costs, flexible working hours, improved productivity and increased staff independence. The transformations did not guarantee an improvement in the financial status, and the improvement in financial performance recorded in 2011-2013 was similar to that in the non-transformed entities.

Cost savings due to layoffs of medical personnel and changes in hiring rules indicated that these measures were ineffective. The intellectual potential of employees is an important resource for the profit generation and development of entities. (Działalność szpitali, 2014, pp 14-30)
6. Conclusions and Future Directions

Analysis of data from the financial statements of teaching hospitals allowed for the identification of the determinants of the impact of the intellectual potential of employees on the increase in revenues from providing health services. As reliable, commonly available, and comparable parameters for assessing the possibility of developing this potential, this data is an important tool for analysis. However, they are characterized by significant limitations in teaching hospitals in Poland. Current legal conditions, the averaged nature of reporting data, and the lack of possibilities for individual analysis of a specific employee represent major barriers (Chluska 2021, 2022). This makes analysis of the development of goodwill of teaching hospitals possible, yet difficult. This is not conducive to identifying the formation and development of goodwill in teaching hospitals.

However, the effects of rational human resource management are noticeable. Attention to maintaining and developing the intellectual potential of employees results in an increase in the economic potential of teaching hospitals by increasing contracts for providing health services. This confirms the effect of the intellectual potential of employees on the creation of goodwill of teaching hospitals.

As a motivating factor to improve efficiency and increase goodwill (especially personal goodwill), the increase in salaries (labour costs) opens up new opportunities for providing health services and generating higher operating income. It can be considered that the ratio of revenue to labour costs, indicative of cost efficiency, can be considered an attribute of an increase in goodwill of teaching hospitals. The conclusions of the analyses show that the aim of the paper was achieved and the research questions posed were addressed.

Further research and analysis should determine the ratio of the revenue to labour, trends of its changes, and expected values in the economic policy of the medical entity. Answers to a number of questions in this regard can be provided by the development strategies of teaching hospitals and the decision-making processes of both teaching hospitals and the health sector as a whole.

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MSR 38 Wartości niematerialne,Rozporządzenie Komisji (WE) nr 1126/2008 z dnia 3.11.2008 r. przyjmujące określone Międzynarodowe Standardy Rachunkowości zgodnie z Rozporządzeniem (WE) nr 1606/2002 Parlamentu Europejskiego i Rady.


