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INTELLECTUAL CAPITAL: SOME ASPECTS[4]

The article deals with the content of the term "intellectual capital" and the methodological and theoretical developments for the improvement of corporation through innovative employees.

Keywords: *innovative employees, corporation, knowledge companies, ICM model.*

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ІНТЕЛЕКТУАЛЬНИЙ КАПІТАЛ: ВИБРАНІ АСПЕКТИ

У статті розкрито зміст поняття "інтелектуальний капітал" та методико-теоретичних розробок щодо вдосконалення роботи корпорації за допомогою інноваційних співробітників.

Ключові слова: *корпорація, інноваційні співробітники, корпорації знань, ICM-модель.*

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ИНТЕЛЛЕКТУАЛЬНЫЙ КАПИТАЛ: НЕКОТОРЫЕ АСПЕКТЫ

В статье раскрыто содержание понятия "интеллектуальный капитал" и методико-теоретических разработок по совершенствованию работы корпорации с помощью инновационных сотрудников.

Ключевые слова: *корпорация, инновационные сотрудники, корпорации знаний, ICM-модель.*

1. 12 Key Technology Areas. According to many authors (e.g., Прийма, С., Вовк, Р.[3], Plevny, M., Zizka, M. [4] and Skotny, P. [5]) decisions on the IS/IT belong to fundamental decisions that form enterprise and intellectual capital. It is necessary to ask whether the decision on the IS / IT are similar to or different from decisions in other areas of new era intelligent business. According to M. Smith [6] it may be deciding on IS/IT seen as only one of the decisions on business activities and think again (forsite) or as a separate area with its own logic of decision. In most cases, decisions on IS/IT are realized in the context of business, so many sources dealing with the theoretical basis of the IS/IT are based on different schools of theories of strategic management.

The term "business intelligence" (BI) refers to skills, technologies, applications, practicing for compilation, assimilation, analysis, management and presentation of business information also at times to the information itself [1]. According to S. M. Panchyshyn, the solitary objective of business intelligence is to enhance better business decision-making intellectual capital [2]. The new intelligent technology to make this possible is a relatively recent phenomenon, but the 3 macro trends driving them together have been building for years (goodwill and spillovers intellectual capital).

The first is massive information proliferation performed by IDC. International Data Corporation is the premier global provider of market intelligence, advisory serv-

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ices, and events for information technology, telecommunications, and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1000 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For more than 44 years, IDC has provided strategic insights to help their clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company (http://www.marketresearch.com/vendors/view Vendor.asp? VendorID=2477). IDC predicts that the digital data created in a year will be 35 zettabytes by 2020. That's a stack of CDs reaching halfway to Mars. But the volume isn't the big story, the variety is. All that data will be spread across the diversity of information types listed above. The second trend is the consumerization of IT (big accelerator effect). According to Mark Smith, to manage their retirement portfolios, and to keep up with their friends and family online expect the same ease of use in the tools they use at work [6]. But it's the third trend, commodity supercomputing, that makes available the abundant processing power needed to unify BI and search. With the advent of multicore, multichip, 64-bit servers what used to take an elite multimillion dollar machine just 5 years ago can now be done with commodity hardware. This opens up new possibilities for innovative companies to take a fundamentally new approach to unifying diverse data and making it usable for people with no training in technology.

Innovation levels, as measured by patent volume, shifted across 12 major technology areas from 2009 to 2010, according to the second annual analysis of world patent activity published by the IP Solutions business of Thomson Reuters. The 2010 Innovation Report: Twelve Key Technology Areas and Their States of Innovation [9] tracks patent activity in key technology areas using the Thomson Reuters Derwent World Patents Index® (DWPISM) database, the world's most trusted source of patent information. Derwent World Patents Index (DWPI) provides complete coverage of patents issuing from 41 leading patent-issuing authorities, including European and PCT documents. Information is also included in 2 literature sources; Research Disclosures (Kenneth Mason Publications Limited, www.researchdisclosure.com) and International Technology Disclosures (http://www.questel.com/customersupport/userdoc/ fctsht/dwpi.PDF).

The data in this report was compiled using the Thomson Reuters DWPI[5] and DWPIX (Derwent World Patents Index Extension) database, aggregating granted patents and published applications (examined and unexamined) from January 1 to December 3, 2010. The study tracks unique inventions within the categories:

1. Aerospace
2. Agrochemicals & Agriculture
3. Automotive
4. Computers & Peripherals
5. Cosmetics
6. Domestic Appliances

[5] Derwent World Patents Index® (DWPISM) is the trusted source of patent information, expertly indexed and featuring enhanced titles and comprehensive abstracts.

7. Food
8. Tobacco & Fermentation
9. Medical Devices
10 Petroleum & Chemical Engineering
11. Pharmaceuticals
12. Semiconductors
13. Telecommunications.

The key findings between 2009 and 2010 innovation data include (interalia):

- Aerospace technology area blasts into a new orbit: In addition to increasing overall activity by 25% year over year, the largest aerospace subsector increase from 2009 to 2010 occurred in the field of space vehicles and satellite technology, which jumped up 108%. The 3 companies in this area were Japanese manufacturer "Sharp", followed by Korean manufacturers LG and "Samsung".

- Semiconductor innovation short circuits: The semiconductor technology area saw the largest drop in innovation activity across the 12 areas tracked, falling 9% last year. The drop was driven by subsector declines in integrated circuits; discrete devices; and memories, film & hybrid circuits. The only semiconductor subsector showing growth in 2010 was materials and processes. The innovators with the most patent activity in this subsector were Korean manufacturers "Samsung" and "Hynix Semiconductor", followed by Japan's "Toshiba".

- Computers & peripherals tops the list of the most innovative technology areas with the highest volume of patent activity for the second consecutive year, despite the overall decline from 2009: The computers & peripherals technology area published 212,622 unique inventions in 2010, earning it had been leading among 12 areas in the analysis. However, this is the 6% decline from the level seen in 2009.

Z. Zmeskal and P. Sonderegger state web traffic data is massive. Analytics are a powerful way to aggregate large volumes of data to make trends, changes and outliers in the data easier to see [7; 11]. However, this is just one half of understanding what's going on with the people visiting sites. The other half is putting the context around the facts and figures to better understand why the trends are going in a certain direction, why they're changing the way they are (or not), and why the outliers exist. Without this context, web traffic data is like a daily stock ticker, it's up or it's down, but it still doesn't tell you what investment to make next. Search in the enterprise has stratified into two distinct markets, keyword search and search applications. Keyword search puts a search box on a company portal, departmental wiki or content management system. It does what we've all been trained to expect from search — retrieve documents in response to a query. Search applications support specific decision points in a larger process, like part selection in a product design process.

But many of these decision intellectual capital points rely on diverse data from many sources to make a better choice in unanticipated circumstances, like figuring out why warranty claims on a top-selling product just went up or why the shipping forecast doesn't match what products were actually shipped where last week. This is where search intersects with BI and improves daily decision-making.

2. ICM Model of Intellectual Capital. ICM (model of intellectual capital) character has multiaspect interaction and codependence. According to Anna Szyszka, the business model which supports the optimal development of human capital and intellectual assets is partnering [8]. The characteristics of intellectual assets:

1. Partnering.
2. Business Solutions.
3. Human Capital.
4. Product Solutions.
5. Knowledge Capital.

L. T. Wilson and M. Koskiniemi state that intellectual capital of an organization generates a spillover that is focused on creating tools for value creation and value extraction are:

1. Customers.	I. Meta-knowledge Processes;
2. Employees.	II. Methods (basis for IAs):
3. Investors.	a/Trademarks;
4. Board Members.	b/ Licensed IAs;
5. Advisors.	c/ Knowledge Harvesting (patented).
6. IT Vendors.	
7. Academia.	
8. Standards Bodies.	
9. Experts [10; 10].	

Economists use the term "spillover" to capture the idea that some of economic benefits of R&D activities accrue to economic agents other than the party that undertakes the research (problems spillover effect economics). Purchasers of better or cheaper products, competing firms that imitate successful innovation, and firms whose own research benefits from observation of successes and failures of others' research efforts all garner such spillover benefits. As these examples suggest, these spillovers are created by a combination of new knowledge resulting from R&D efforts, and commercialization of the new technology in terms of a product or process that is successfully implemented in a marketplace. Thus, a complete understanding of the R&D spillover phenomena requires an unusual combination of scientific/technical and business/economic analysis. Market spillovers result when the operation of the market for a new product or process causes some of the benefits thereby created to flow to market participants other than the innovating firm. It is this "leakage" of benefits through the operation of market forces, rather than the flow of knowledge itself, that distinguishes market spillovers from knowledge spillovers. Any time a firm creates a new product, or reduces the cost of producing an existing product, the natural operation of market forces will tend to cause some of the benefits created to be passed on to buyers. Factors making knowledge spillovers larger or more likely include:

- "multi-use technology";
- "proof of concept" that would point the way for other researchers to try related ideas in other applications;
- key component that will facilitate redesign and improvement of multiple distinct systems using that component;
- "pathbreaking" technology: success will open an entirely new line of technological development with apparently significant economic benefits;

- subsequent technical developments require expertise in applications technologies in which proponents do not have relevant expertise (applies to both "multi-use" and "pathbreaking" technologies);

- useful knowledge would be gained even if project fails to achieve its technical objectives.

Network spillovers result when the commercial or economic value of a new technology is strongly dependent on the development of a set of related technologies. An example of network spillovers exists among all of the different developers of application software for use with a new operating system platform. If one firm develops a particular application, people will buy it only if many other firms develop other sufficient applications so that the platform itself is attractive and widely used.

The path through this dilemma is to look for the factors that cause social and private rates of return to diverge: the presence of such factors signals the possibility that social returns may be high at the same time that the risk of displacement is low. Strong likelihood of research spillovers is just such a factor.

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