The Legacy of Tomas Bata to the Information Processing for the Development of Enterprise

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Abstract: Businessman Tomas Bata was successful also because he was able to work with information efficiently. While it is difficult to compare the work with information twenties with today's information systems, but we can find elements that do not emphasize current systems because the information is accessible anytime, anywhere on-line. One such element is the regularity in information processing and its presentation. The article gives an overview of resources to draw from the legacy of Tomas Bata, the first comparison approach in creating and using of personnel and manufacturing information and how to deal with the legacy of Tomas Bata in information processing. This is done a methodology for upcoming research. Even it can be assumed that the corporation meets the characteristics of Tomas Bata „learning organisation“ as we understand in the dimension of the information and knowledge society. Historical development is also confronted with the current state of the information system Bata Shoes Organisation.

Key words: Thomas Bata, information system, information processing, source of information, learning organization, Bata Shoes Organisation, ERP

Tomas Bata (TB) has become an icon. He managed to push through a system of management and organization, which persisted even after his tragic death in 1932 and further developed in the spirit of its traditions. This system contained a number of elements that are appreciated and imitated today. TB has become a symbol of a man who left behind a "monument".

"The organization and management from the beginning created on the fly, without any deeper theoretical justification, pragmatically, it was applied method of "experimental verification". TB and his staff changed the system "in his own image" as they intended to manage and inform (Garlik, 1990, p.30)"

1. How company of Tomas Bata works with information

We can stated that the TB (Tomas Bata) information processing method (with some exaggeration an "information system") was an open system where key elements were subject to the approval of senior management only, but anyone was able hover improvement proposals and was to assess whether this proposal brings improvement, then it was approved and incorporated into the system. The information base was wide and many experts agree that at the time when unprecedented many networked information flows entered the system, the information was efficiently processed and then used.

The question of whether this system can take into today's match the professionals mainly in the fact that it is practically impossible. Professor Green in his reflections mentions in particular the inability to "bank independence" legislative restrictions of any kind and in particular of globalization is likely to obscure the possible benefits of this system. Jiri Jaklin in his article for the economic portal Euroekonom writes:

"Building of the own cities today can proper motivate employees rather in developing countries. It is also the question of whether young people today should have interest in almost military education, as in times of uncertainty Great Depression. Orientation specific region on a single branch of production, moreover, may have a negative effect on the time decay of the industry, for example in Ostrava after 1989 (Organizace a rizení, 2006)."

The other answer would of course be if the question was as follows: "It is possible to be inspired system of work with information Bata system today?" And on this issue we would like to contribute in the article. Its content focuses on an overview of literary reference resource TB, the initial consideration of information processing in both periods and the methodological base of a research
"Analysis of TB information work and the information processing in current information systems (IS)."
Results of the research will be the content of the following article.

2. Literary sources of the Legacy Tomas Bata

Legacy and works of Tomas Bata is most concentrated in Zlin. This does not mean, however, that Zlin was the only place of the legacy TB. The expansion of his business was truly phenomenal in the years 1924-1928. TB was not able to create a complete work in economics due to the premature death and his knowledge is accessible in fragments. The city Zlin this source indicates as "Bata literature" or "Bata fond of literature" and try to maintain it and to remind. Important sources of information Bata literary fund are:

- **Archive** (The State District Archive in Zlin, the Moravian Land Archives in Brno, etc.). As the only state institution is able to offer a contemporary documents that can uncover details about TB, especially transcription communication. Random include: "The three-year plan Bata factories" - a 50-page report in German, which describes the activity of Bata factories, production data footwear, the number of workers in each section from 1939 to 1942, the purchase and export, organization, shopping, relations with Brazil, J.A. Bata business trip to the U.S. on his education and study of the social policy. The writings of this magnitude are not possible to look elsewhere.

- **Public libraries** (Regional Library František Bartoš in Zlin, Library at Tomas Bata University in Zlin). These public institutions provide literature of the Bata system of work; especially suitable titles are: "Garlik, Vratislav. The Tomas Bata enterprise organization and management in 1939", "Krecek, Stanislav. I worked by Bata". Regional Library in Zlin provides a database of records from Kramerius publisher that contains a digital form of Bata newspapers, various communication etc. The combination of these two documents gives the best survey about information processing according to TB.

- **The Tomas Bata Foundation** based in Bata villa in Zlin. Bata's family villa was restored in 1989 and Tomas Bata junior offered it as space for the Foundation offices in 1997 (Foundation, 2000). It is possible to study a library fund, which provides only complementary survey about TB already for knowledgeable researchers.

- **Websites**. Besides the text documents can be studied the Bata system of work in the memories of graduates Bata School of Work (Graduates, 2013). The Internet sources are focused on the information processing, too. The most important pages are: "Proceedings of the international UTB conference 2002 (UTB, 2002); the blob page dedicated to TB (Bata Story, 2012), and the personal page of Associate Professor Barvíř (Barvíř, 2000).

3. Information Processing in the TB time and Today

"IS of the TB corporation respected the need of linked enterprise data. It could not arrange without organizing data into a predefined structure (as is the case with today's database applications). Feedback, approval and inspection process have been the indispensable and inseparable part of the IS (Sodomka & Klčova, 2010, p.181)".

The management and information policy tools included the careful processing of personal data, with motivation and feedback mechanisms. It is about Total Quality Management today (Sodomka & Klčova, 2010, p.182), such as careful planning, the frequency of information, unified set of forms, and finally the developing a knowledge base (excerpts printed materials, libraries, patent's information, language skills, etc.)

3.1 The production information

The production program was for TB always the key problem, everything depended on the production. Mentions of IS for production in public documents paradoxically were almost absent. However, information on procedural matters or accounting operations, even about circulation of information is quite a lot. Why? It is offering a quite logical explanation. Information relating to the manufacturing process, specific device descriptions and production know-how were for the Bata company sensitive information. This information is probably the subject of intellectual property Bata Shoe Organization, Successor Empire of TB.
The whole system of production had been consistently developed, dealt with material input, technological processes, eliminating risks in production, maximizing production capacity while maintaining the highest quality. Quite an innovative approach (taken from the USA) was not only material incentives of workers at the factory, but also building a relationship with a particular machine, what you need to know to repair and maintain it. For service interventions was developed a sophisticated system. Information from the production was transmitted by leader of workshop and the whole production was directed by detailed plans.

3.2 The personal information

The IS begin of building in Bata corporation can be considered the processing of personal data (Sodomka & Klcova, 2010, p.180). The Personnel Department had a task to recruit and dismiss employees. It was controlled by the principle the first workplace "a new employee must be placed at the simple job and let him to obtain itself a better job". It pursued the development of staff, all data was recorded, was led an overview of the availability of staff at all managerial positions. Human resources (HR) professionals had a duty "in five minutes to propose at least two replacements for the head of any department" (Garlik, 1990, p.53). Other information that was stored, are already quite well known: tracking earnings, housing, injury prevention, etc.

The human resources in today's systems are well managed. As with Bata a today's company that wants to implement IS, requires HR. Everyone knows what the HR term implies and therefore it is with accounting software always at the first interest when is requested to implement an enterprise IS. Personnel IS can an organization creates in two ways. The first is the supply of all-in-one ERP system (Enterprise Resource Planning - a system to support the major processes in the company); the second focuses on specialized software, for example, for the government organisations (Sodomka & Klcova, 2010).

3.3 The period of information

The frequency of information in the TB system was rather strictly determined as follows:

- Immediately.
- Daily.
- Weekly.
- Semi-annually.
- Otherwise.

The information what could be accomplished immediately so-called Bata "working regulations" (Bata, 2002) have been passed immediately after the completion.

With the daily frequency was spread production schedule, orders, sales, vouchers for signing, and account settlement for suppliers (Garlik, 1990, pp.22,24,38). Weekly (Wednesday) to be given the information to be included in the production plan, results of the production and sales plans, weekly billing. In addition to the Saturday conference, bill payment, clearing warehouse, billing period (Thursday to Wednesday). Payment of wages was on Monday-avoiding the expenses of the weekend (Garlik, 1990, pp.22,24,38,39,49).

The semi-annual plans (presumptions) were processed and were further divided into weeks. The plan was shared in physical units of the detailed kinds of goods and it was followed by assumptions in budgets. The presumptions were drawn from the lowest-management and for reasons of consistency are applied to other workshops and associated production units, though for them to have no logical justification (Garlik, 1990, p.21). It can be said that no other strictly periodic information was used in the system.

It is not confirmed, but it is possible that in the system was prepared monthly financial dynamic balance (operating income + total profit) and we know that once a year or even less frequently held periodic training of workers and their annual evaluation, when was an opportunity for employees to get better job (Garlik, 1990, pp.24,42,55).

We try to analyse the difference in Bata system and transaction-oriented database processing. If IS is working properly (it contains relevant and current data) then it is possible the information from the IS to get immediately if necessary. So we have an instant overview of the actual state of the managed system, and if appropriate the forecasts of its future, too. At this point the reasoning we suppose that
regular period information processing was completely removed. The ability to get information from IS almost immediately is in real life streamlined thru methodological guidelines that explain the frequency of information production.

Dr. Pokluda (historian of the Bata period) mentioned that the strict requirements on staff for the frequency of information were extremely demanding. These were permanently "trotting", managers was constantly forced to perform for routine calculations and systematic work and urged them to think about work. "It was very challenging, given that documents for wages had to be finished on Thursday, otherwise the responsible person pay a fine."

If the information in current IS is accessible immediately (on-line), it means that a user has information available when it is needed. In practice, however, very often we meet with the effect of decreasing the need to use readily available information. This topic is more for psychological analysis, but can be an opportunity to formulate a hypothesis for the future research: "The production of information in regular period solely increased awareness about business processes, and forces them to think more effectively and be more creative?"

This topic cannot be interpreted in a manner: "Is the button pressing less effective than hard, regular work?" No, the question is asked so that a regular rhythm gives to the staff (in accordance with natural laws) suitable conditions for the manner of work via business process. It would be useful to verify in practice this assumption? Some of the information could be generate by IS only at predetermined periods and could be compared in the experiment, whether such an approach is more effective than to get on-line information freely in any time.

3.4 The unified system of templates

The chief accountant was responsible for the unified system of templates used in the enterprise TB. The basic set of forms created gradually by senior management along with a system of internal governance and workshop management was known in detail. Basic system of templates (as one of the management tools) could be modified only with the consent of the leadership (Krecék, 1992, p.126). The unified system of templates is an absolute standard in today's IS. Moreover, it is relatively easy to modify any template and this practice is also widely used. In addition, there are rules on the transmission of information in an electronic form, which is clearly step forward.

3.5 The information sources

Data was collected by extracting from professional journals and newspapers, economic analysis, situational reports of public institutions, from correspondence and personal contact, and not least from the business and academic delegations coming to Zlín (Valusek, 2012). Corporations TB also owned a well-equipped technical library of the foreign press, which covered the entire spectrum of issues related to footwear production. Corporate labs then use specialized libraries (Sodomka & Klcová, 2010, p.180). The findings were sent to individual supervisors discussed at conferences or Saturday resonated in Bata printing and internal newsletter. The distribution was implemented in the form of short commands, information reports or bulk form - the special paragraphs in Bata weeklies or specialized press (Valusek, 2012).

The knowledge base TB was also extended by research results. The research was focused mainly to the patent activities. The patent was elaborated firstly professionally and secondly in journalistic form. The head of Research Department on the so called "Study day" assessed once a week the patents and technical innovations from the scientific literature. There was a professional discussion of their possible use (Sodomka & Klcová, 2010, p.180).

Today's IS are in variability and automatic data processing in considerable advantage. The corporate computer network, central data storage with automatic backup, complex functions with mobile access to information, and other specialized software superstructure is a standard. The advanced methods of data analysis and report processing (Business Intelligence) are able to quickly reach the quality of the Bata system. The risk, however, it may be that this sophisticated enterprise system is not followed with the preparation of users' and the maintenance of a system could be more challenging than its benefits.

3.6 The TB learning organization and the TB knowledge management

By Senge (1994) the learning organization must meet five conditions:
1. Apply systems thinking in the organization, monitor the process of change.
2. Achieve a "personal mastery". The difference between reality and the vision should lead to either the implementation or verification of this vision.
3. Analyse and generate changes in well-established models of thinking.
4. Create and share a vision and engage employees to implement this vision.
5. Suppress the ambitions of individuals).

The scheme "learning organization" is shown in Figure 1.

![Figure 1](image1)

**Figure 1 the system model of learning organization. Source: (Marquardt, 1996)**

By comparing models of Senge and Marquardt we can conclude that access Senge gives far greater emphasis on personal aspects, while the second approach is purely generic. The words "Technology" + "Knowledge" + "Organization" could be called "Know-How" and the phrase "Learning" + "People" could be called "Personal Mastery". The Bata organization, which can be described as a learning organization, was organized in conjunction of general theory of learning organization with a strong emphasis on personal potential.

It is believed that a knowledge strategy of the learning organization must be based on understanding what the knowledge challenge is. The essence of this challenge comes down to a few key points about the nature of knowing (O'Lcary, 1998).

**Knowledge lives in the human act of knowing:** Our knowledge is often an accumulation of experience - a kind of residue of our actions, thinking, and conversations - that remains a dynamic part of our on-going experience. This type of knowledge is much more a living process than a static body of information.

**Knowledge is tacit as well as explicit:** Sharing tacit knowledge requires interaction and informal learning processes such as storytelling, conversation, coaching, and apprenticeship. The tacit aspects of knowledge often consist of embodied expertise - a deep understanding of complex, interdependent elements that enables dynamic responses to context-specific problems. This type of knowledge is very difficult to replicate and even explicit knowledge is dependent on tacit knowledge to be applied.

**Knowledge is dynamic, social as well as individual.** We need others to complement and develop our own expertise. In fact, our collective knowledge of any field is changing at an accelerating rate. What was true yesterday must be adapted to accommodate new factors, new data, new inventions, and new problems (Vat, 2004).

Mr Marquardt (1996) in his book Building the Learning Organization summarises by very suitable manner possible ways how to we could say “build” the organization called “learning organization” and then followed by only a small step to “resurrect” to so-called “living organization”. This term is used in publication by Professor Zeleny (2011, p.108) in his timeless monograph summarizes the insights that he perceived (among other things) as a reflection of the effect of Bata’s ideas.
Is it possible to compare Mr. Marquardt mentioned ways that lead to the creation of learning organization and ways that Bata used? In this case 25 points will be enough:

1. Develop action learning programs throughout the organization (time and effort);
   YES. Bata gave a strong emphasis on continuous learning programs throughout the organization.

2. Increase individuals’ ability to learn how to learn;
   YES. Bata have founded a business school for the needs of the factory. “Teaching has to be based on the way of life and has to further improve this way” (Bata, 2002, p.81).

3. Develop the discipline of dialogue in the organization;
   YES. Bata Shoe Company was absolutely legendary in this matter.

4. Develop career development plans for employability;
   YES. The actual career plan was very simple and effective. Employee started at low positions and had his diligence “to develop”, but, Bata Company had an unprecedented standard care for employees. These included: Care in the care in industrial work, nutrition, health, training, organization of leisure time, ensuring age (Pochyly, 1990, pp.71-97).

5. Establish self-development cash programs;
   YES. Self-development cash programs had an each employee, each student, and of course whole Bata Company had its own cash program to ensure and to sustain absolute financial self-sufficiency.

6. Build team-learning skills;
   YES. Team-learning skills took on many forms. For example by the regular Saturday’s conference for management, training, team support and the most by the competitions the Bata School for youth. Mr. Nádvorník (1990, p.71) reports are about regular competitions, which were designed to motivate and indurate a team of young students. It's no secret that from this competition a great talent of Czech Republic - Emil Zatopek came up.

7. Encourage and practice systems thinking;
   YES. System thinking was a Bata creed - thinking in context and emphasis on systematic. “If we want to make a great job, we must first look for ways to build a great man (Bata, 2002, p.79)“.

8. Use scanning and scenario planning for anticipatory learning;
   YES. Bata used a daily scenario planning with a weekly Saturday's conference for anticipatory learning.

9. Encourage/Expand diversity, multicultural and global mindsets and leanings;
   YES. Everyone at the Bata factory had the opportunity to free expression. Processes and activities had to been set. Proposals for greater affectivity was welcomed and rewarded. Many different nationalities were coming to Bata in Zlin to the learning curve: Yugoslavs, Germans, and French, also Indians, Egyptians, Bulgarians and so many other nations (Rybka, 1996, p.10).

10. Change the mental model relative to learning (most people retain a negative picture of learning, one acquired in their school days);
    YES. It is very similar to point 2. Bata had a very clear vision of teaching. His exclamation to teaching methods - Teacher: Be an example, Student: Try and make (Bat'a, 2002, p.78). This school has to combine classroom with workshop and has to show how a word can became the body to turn science into bread (Bata, 2002, p.79).

11. Connect learning with business operations (direct connections between learning and improved business operations makes it easier to persuade people);
    YES. This is absolutely basis of Bata management system.

12. Assess the organisation’s capability on each subsystem of the systems learning model;
    YES. Capability assessing in Bata factory was represented by two main principles. By Saturday’s conference, which handle all data flows flexible and operational technical evidence (Nádvorník,
1990, p.69). Daily reports are of various processes that showed a daily difference and current needs.

13. Communicate the vision of a learning organisation (the most sophisticated vision is of no use unless it can be clearly understood by others);
   YES. All participants understood the vision of the company very well. Public service - serve to life by the right examples.

14. Recognise the importance of systems thinking and action (a company cannot become a learning organisation by focusing on just one subsystem or on one part of the organisation);
   YES. System thinking and action was also a very basic attribute of Bata system.

15. Leaders demonstrate and model commitment to learning;
   YES. Bata was a great example in all cases.

16. Transform the organisational culture to one of continuous learning and improvement;
   YES. This is a precise representation of the Bata predicate, which he called "The path to honour, power and prosperity. (Bata, 2002, p.90)"

17. Establish corporate wide strategies of learning (encourage experimentation, recognise and praise learners, reward learning, spread the word about new learning, apply the new learning);
   YES. The whole business education process was systemic. Also Bata Factory School had a major aim - to reach the close link theory with practice.

18. Cut bureaucracy and streamline the structure;
   YES. Bata factory was an “enemy” of unnecessary bureaucracy. All records had a practical purpose.

19. Empower (to possess the necessary freedom, trust, influence, opportunity, recognition, and authority) and enable (to possess the necessary skills, knowledge, values, and ability) employees. Significant resources of time, money, and people are allocated to increase employees’ skills not only in present job but also for future, unforeseen challenges;
   YES. All the staff were so equipped to be able to meet and unforeseen challenges. On the other hand they had to be very gentle on the company values and had to demonstrate active cost reduction and increasing efficiency both in production and in the learning process.

20. Extend organisational learning to the entire business chain;
   YES. Beside to well-known commercial and mercantile strategies, there was also a direct integration of trade to foreign knowledge, which made this system extremely dynamic. The employee had a special clause in the service contract - duty to perform at least one trip a year abroad. They had also an obligation to improve their skills continuously as well as learning language and keeping track of global developments in technology (Lesingrova, 2008, p.172).

21. Capture learning and release knowledge (quickly throughout the organisation);
   YES. The knowledge base in Bata factory was also extended by research results. The research was focused mainly to the patent activities. The patent was elaborated firstly professionally and secondly in journalistic form. The head of Research Department on the so called "Study day" assessed once a week the patents and technical innovations from the scientific (Sodomka & Klcova, 2010, p.180).

22. Acquire and apply best of technology to the best of learning;
   YES. See paragraph 21.

23. Encourage, expect, and enhance learning at individual, group, and organisation levels;
   YES. Individual learning process was provided by rewarded self-study process. Group learning was provided by institutes and laboratories and in corporate libraries. A company-wide process was set by control and evaluation processes to increase efficiency, ideas, talents that will lead to the patenting activity. This point improves previous points – 21 and 22.

24. Learn more about learning organisations;
YES. In addition to everything already mentioned, Bata company have created a “travel” group that had (besides their company business) to gather all new information abroad about the learning organization.

25. Continuous adaptation, improvement, and learning.

“Invention is the property that we get only an exercise in the early years, at work, but never at school. The school is a tree of knowledge. Science is great, but it cannot be used without invention. In each case first must be invented here hoe to use that which science (Bata, 2002, p.91).”

4. The Legacy of Tomas Bata for the Information processing

Tomas Bata system was based on the principles of Taylorism and Fordism (Partyk, 1967). According to Gramsci (1988), in Fordist system is not a production isolated from society, quite the contrary reciprocally conditioned by a particular political system, ideology, morality and behaviour. These principles have been applied in the Bata system and also supplemented by regional influences and local practices. For successful operation of this type of system was required:

- A complex production process to divide by Taylors principles into a series of simple work tasks and the specialization of separate production functions and unskilled labour. The same should be to carry out with information. The part of information was labelled as the "basic" and this information was "recycled" (periodic restoration). All other information was welcomed and encouraged.

- The mass production to develop by Ford's style. The phenomenon of the twenties and thirties brings certain specific features. For example, changing standards of production, social consumption, distribution, collective bargaining, regulation of the economy and the intensity of capital accumulation (Lipietz, 1982). The important thing was that mass production is necessarily linked to the development of mass consumption that should growth in demand to such an extent that followed the growth of production. The Bata system was oriented on expansion, export and in later periods to diversification. In Zlin environment was therefore gradually implemented the "modified" Fordism based on the Bata management system.

The system reflected the greatest possible extent, the principle of justice and a high degree of self-regulation skills. The regulation was based in particular on building a relationship to the company, increasing the moral principles of needs, and improving education. Regulation in the form of punishment/repression of a mutual assurance/insurance was the last degree of functional regulation. A very often pronounced reasoning that the development of ICT and globalization has reached such a development that the Bata system work with information is already out-dated. The idea should be answered by research results.

4.1 The International Organization Bata today

The Bata Shoes Organisation (BSO) states that currently own 5,000 stores in 90 countries, working in it about 40,000 people and another 17 thousand people are employed in the cooperating organizations (Bata.com, 2014). The company is engaged in the manufacture and sale of shoes, stocking goods, luggage, leather goods, accessories, leather, rubber and rubber products. The headquarters of BSO is based in Lausanne, Switzerland, is the coordinating body of the whole concern. Within a multicultural environment are created international implementation teams for ICT, production planning, logistics, product marketing, business, HR, decision support, and others.

The BSO information system is composed of several subsystems. The substantial part of IS was developed by own company experts; to its elaboration is mainly used open source software such as Linux, Perl, PostgreSQL database, modelling tools such as CAD/CAM and others. Exceptions are areas that are subject to legislation (accounting, payroll). The core of IS represents the commercial system and around them were developed the other enterprise applications. The core is the only application that must not be changed and is used almost unchanged from 1978 throughout the corporation. It was developed in COBOL and later ported to the relational database platform IBM/DB2. The IS provides the same outputs in any country.

The unification of all the websites into one portal was made in 2007; in most other cases, the company respects the principle of decentralization. Applications are usually connected through Web services or are used the fixed bridges (the integration of external agendas into a commercial system). Into the
corporate intranet, which is solved through the wiki concept are further included all relevant reports and outputs from the corporate IS. These documents can be searched in full text. This knowledge base is available to all corporate workers (Sodomka & Klcová, 2010, pp.33-37).

From the above it follows that Bata Company its own development in the information area managed reliably. The whole system works in decentralization process with a certain freedom, if it does not affect the overall concept. Critical (strategic) systems are centralized and the company only directs the data flows (methods and procedures are already far looser). The company is building an independent knowledge base from the Tomas Bata time.

4.2 The Enterprise resource planning system

One of the Czech enterprise resources planning (ERP) system with relatively high quality rating is IS “QI”. The Associate Professor Sodomka writes about its: 

"This system has not although the number of the references or industry solutions, as some of its domestic competitors, yet it is quite exceptional for its technological concept that it belongs to the world elite. This confirms the place of DC Concept, producer of QI, in the list of Top 100 Vendors in 2006 IT Week magazine. Such success has so far failed to reach any further Czech producer of ERP System (Sodomka & Klcová, 2010, p.227)."

![Figure 2 QI Data Network Technology – the data model](QI.com, 2013)

The unique technology - QI DNT (Data Network Technology) is a networking technology data model with selected object features (see Figure 2). Thanks DNT can be faithfully model the dynamically changing processes and documents in the organization. Data is stored in a relational database and for QI are provided through an object server that is part of the application server. All applications are stored in the database, run on the application server and for a user are interpreted through the client QI.

This solution protects the investment in the development of applications when the changes in operating systems, database tools, user interface, communication protocols and application server QI are designed to not depend on one database server, but to be easily ported to the database servers from different manufacturers. QI client can connect to the application server QI within the LAN or WAN using TCP/IP protocol. QI is also known thru marketing label as a “flexible information system” (QI.com, 2013).
5. The Methodology of research the TB Legacy for the Information Processing

5.1 Methodology

As indicated in the introduction, one objective of the article is to specify the research methodology about the work with the information in the TB time and in the today's IS. The methodology should pass the phases:

1. **Definition of the research problem**: The IS have undergone since time by TB Corporation a big step forward. It may be its work with information in something a model for today's systems?

2. **The study of literature**: The problem is that the Bata system of work with information is completed only into fragmentary knowledge, whereas today's IS are described in detail.

3. **Formulation of the research questions and hypotheses**: The description follows behind the final stage of the methodology.

4. **Creation of a research plan**: The basic processes for working with information are described in the literature review and according them will be modelled the basic structure. This structure will be further enriched with the identified relevant knowledge from historical sources, such as Bata newspapers, archival documents. Presumably, these documents confirm the method of working with information in the Bata Corporation, and it enrich by detailed specific situations. Furthermore to describe the today's work with information in a common IS. It is waiting that the comparison in selected parts of IS will be at least one area in which the Bata system is more efficient. Nor can it be inferred that it could be uttered clear verdict: "This system is better/worse" because these systems cannot be compared with each other as a whole. What can be compared, are the individual parts.

5. **Collecting and organizing data**: Mostly it will be the open sources of information (statistical data from websites, information from ERP systems, etc.) Historical data will be organized into logical units. Additional data will be obtained in the form of a questionnaire.

6. **Data analysis**: The study and analysis of functions and information flows in todays IS and their comparison with processes and information flows of TB system. The differences will be specified in particular areas; these differences will be presented as partial result of the research.

7. **Research findings**: The main research conclusion should be formulated clearly. The specifications of information processes in Bata systems that are still used in today IS and are effective, and vice versa. Are the functions of today IS beyond the limits of the TB work with the information? The verification of hypotheses must be finished. General lessons learned can be drawn?

5.2 Research Questions

On the basis of the proposed research methodology and content of the article follows with the definition of research questions and hypotheses.

1) **In which areas (functions) the benefits of today IS are for business management higher than in the TB system work with information?**
   - Preliminarily can be concluded that the range of functions and the degree of automation is better. A well-functioning IS integrates data across the enterprise and provides ad-hoc the online information.
   - In contrast, the Bata system of work with the information was able to get the essence of information management. Only necessary high quality and effective information was taken in account and the other information was not acquired.

2) **Are there today better ways of obtaining data and making information?**
   - Today's method of data acquisition and creation information is also consistent with the previous question; it is automated and user-friendly.
   - The information processing put at the people far greater demands during TB period.
3) **What can be from the TB work with information into today’s IS to take over?**
   
   - It is necessary to assess the rationality and efficiency of information generated in the TB and to compare them with the "inflation" of functions in the actual IS.

4) **What kind of TB work with information in relation to the management can transmit to today’s ERP system?**
   
   - The TB management system needed only the necessary information, but consistently required. This information was generated with a fixed frequency, controlled and exploited. The question is archiving compared to the data centres.

5) **There is at least one area in which is the TB work with information better than in the actual IS.**
   
   - The focus should be oriented at personal information, where can be probably find that area and confirm the hypothesis.

6) **"The production of information in regular period solely increased awareness about business processes, and forces them to think more effectively and be more creative?"**
   
   - This hypothesis is defined in part 3.3 of article.

6. Discussion and conclusion

The IS development follows the development of ICT and is managed thru the information strategy of enterprise and organization. This paper presents two ways of approach to work with information - the historical and contemporary. The evaluation of the two approaches; including the historical context we get a view on the support of information for successful business and to reach the quality of organization.

The historical concept of work with information, as can be seen from the literature, relies mainly on effective acquisition and use of information, because the production of information requires energy and those the produces information must be used. This system puts great demands on employees; they are naturally forces to additional education. The mastering work in TB system can be compared with "learning organisation" in the modern sense. The employee was able to get information, process it, store, and search them again. The work with information according TB system was a great school of life.

The today IS is characterized by automation and user comfort. Data is "pumped" into the system from ongoing business processes and obtained information not cost any extra energy. The managers have "the instant preview of the current situation" thanks to the IS. The IS provides an actual view of the status of the organization anytime, anywhere and to anyone (who is authorized).

The Bata Shoe Company was not far from the only one in the interwar period that achieved the economic boom due the application of the principles of Fordism and Taylorism (the Beetle as a Babka and others) using the environment of the economic cycles. These companies were able to create any sort of local "bubbles", which were at that time very efficient and modern self-sufficient systems. The Tomas Bata personality is well-known thru philosophical, psychological and moral aspects of business. There is no historical evidence that the TB any abnormal clung to work with information. The system was built in the shape that can be able "naturally soak" of information about processes, production, trade, expansion and so on. The TB system was precise and timeless in its time.

**Bibliography list**


**JEL Classification: B30, D83, L15**