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USING DASHBOARDS FOR THE BUSINESS PROCESSES STATUS ANALYSIS

This paper describes business process status analysis using the dashboards. The dashboards are considered as those, which belong to the most preferred Business Intelligence tools nowadays, which are used by both higher managers and ordinary employees. Existing software tools for dashboard design were reviewed, as well as the most popular visualization charts were outlined. The place and role of analytical dashboards as part of business process management is described.

Introduction

In today's business environment, the tendency is towards more data – so much so that information technology researchers and practitioners have come up with a new term to accurately describe it: Big Data. Managing and extracting real value from all that data is a key challenge facing modern businesses. In seeking a way to simplify data analysis and distribution, organizations often find themselves quickly dealing with the dashboards. Dashboards simplify complex processes into manageable, digestible chunks of information so companies can focus on the day to day operation of the business.

Problem statement

Decision makers always have a crucial role to play in any form of business. They have to prove their judgment ability and Intelligent Quotient (IQ) with relevant facts and figures. A tool that actually transforms data into information and information into presentable business format can help them to do so. Implementation of the PDCA (Plan-Do-Check-Act) cycle is one of the main requirements for the development and use of business processes in companies, and also it is one of the important conditions of the certified quality management system implementation.

Dashboards undoubtedly belong to the most preferred Business Intelligence (BI) tools these days. Such a popularity is not because implementing business dashboards has become cheaper and easier than ever before. Rather it is the efficiency, usability, and decisive nature of a dashboard that counts the most. With customized dashboards data analysis and interpretation become easier, quicker and relevant [1].

The concept of using dashboards based on user roles or hierarchy has changed now. Employees at each level of their jobs and job positions need to measure their Key Performance Indicators (KPI) [2] and other performance metrics related to the company's goals. This activity involves both qualitative and quantitative measurement of data coming from diverse resources.

The object of research is the process of business processes status analysis. The subject of research includes recommendations on how to build dashboards for the business processes status analysis. The aim of research is to investigate usage of dashboards for the business processes status analysis.

Review of existing software tools

There is a growing demand for data visualization tools which can allow business owners to visualize complex data and discover relevant trends and patterns within the industry. There is a range of tools available which display statistical data through bar charts, pie charts, infographics and more. But, assessing different sets of visualized data separately does not provide the required competitive edge for businesses. Hence, what they are looking for is a platform which allows combining the results of different data analytics tools on a custom dashboard. When looking at the different data analysis and dashboard tools, there are two solutions that really resonate with the current topic. Let us go through and take a deeper look at each of these tools and we have identified key features, the advantages and their USPs (Unique Selling Proposition).

DashThis is an automated marketing reporting tool that enables users to create great visual and easy-to-understand dashboards quickly and easily (see Fig. 1). The software is known for being very easy-to-use with its drag-and-drop interface, as well as for having a great customer service [3]. DashThis supports more than 34 integrations including Google Analytics, Google Ads, Facebook, Instagram, LinkedIn and Twitter, and offers many time-saving features like report templates, preset widgets and cloning options. The pricing starts at 33$/month for 3 dashboards, including all features and unlimited users and data sources.

USPs of DashThis tool [3]:

1. The tool is easy-to-use with a drag and drop interface.
2. All the features are included: preset widgets, templates, cloning options, widget merging.
3. CSV (Comma Separated Values) files import.
4. All data sources can be visualized in the same dashboard.
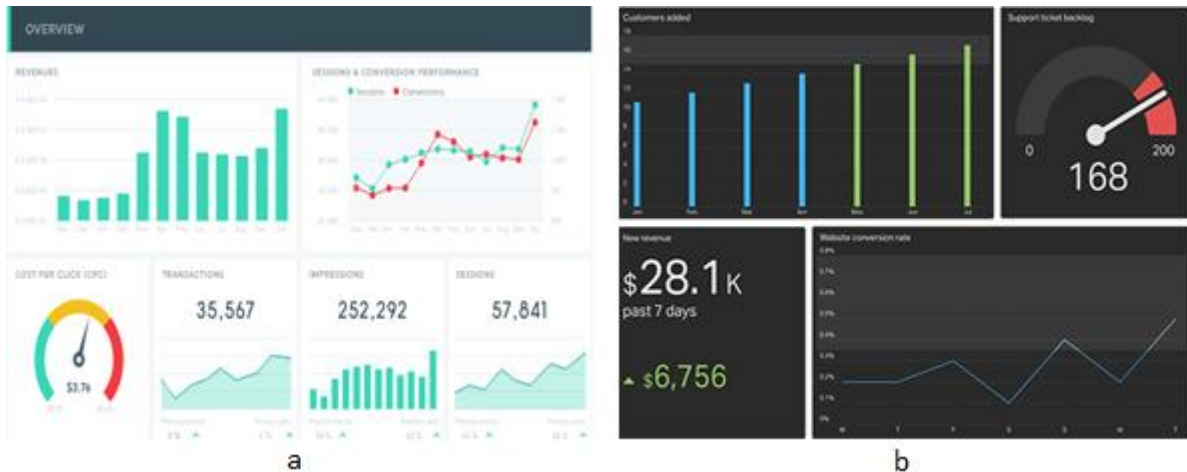5. Support of unlimited users for each account.

Figure 1 – Platforms which allow generating custom analytics dashboards:
a – DashThis; b – Geckoboard

Geckoboard is a tool for collecting, visualizing and sharing important information within a company. The Geckoboard dashboard platform allows users to track important information in real-time from one place. With more than 80 integration options, there is always at least one option for a particular company [3]. And if not, users can also implement their own data by linking their dashboard to a database API (Application Programming Interface). With the Geckoboard mobile app, users can access their dashboards wherever and whenever they like. The mobile app is only available for iPhone users. Interested parties can use Geckoboard for $25 a month.

USPs of Geckoboard tool [3]:

1. Dashboard gives a good overview.

2. Lots of useful features, such as the ability to share read-only versions of user's dashboard, or to show the dashboard under user's own domain name.

3. Raw data can easily be converted into simple and understandable visualizations.

But despite all the advantages both solutions are not free and do not take into account the importance of KPIs data.

Research materials

Dashboard is a tool that offers a visual representation of business organization's real time performance. Making valuable decisions has always been one of the most important things in business and those decisions are made based on numbers an analysis that similar tools offer. A dashboard also a tool that gives business leaders valuable information, and it provides a quick outlook of all the most valuable numbers, which allows business leaders to perform an accurate business analysis. It is possible to use business dashboards at any level of business operations; however, most dashboards are used by higher managers, CEOs (Chief Executive Officer) or business leaders, and therefore they are also called executive dashboards.

Another thing that is slowly starting to change is the fact that there are more and more people who are not senior executives or managers that use dashboards during their everyday work. The role of dashboards in Business Intelligence not so limited to big roles and large companies as the methods of using dashboards based on hierarchy or user roles has changed. Today, employees working at every single level of their job positions have the need for measuring valuable performance metrics that are related to the goals of the company and measure KPIs.

Each of the KPI should be visualized. The most popular visualization tools are shown in Table 1. Values in a second column are based on survey [4] results according to respondents' answers. These values demonstrate how well a certain visualization tool helps users glean insights and make decisions.

Table 1 – The most popular visualization tools survey results

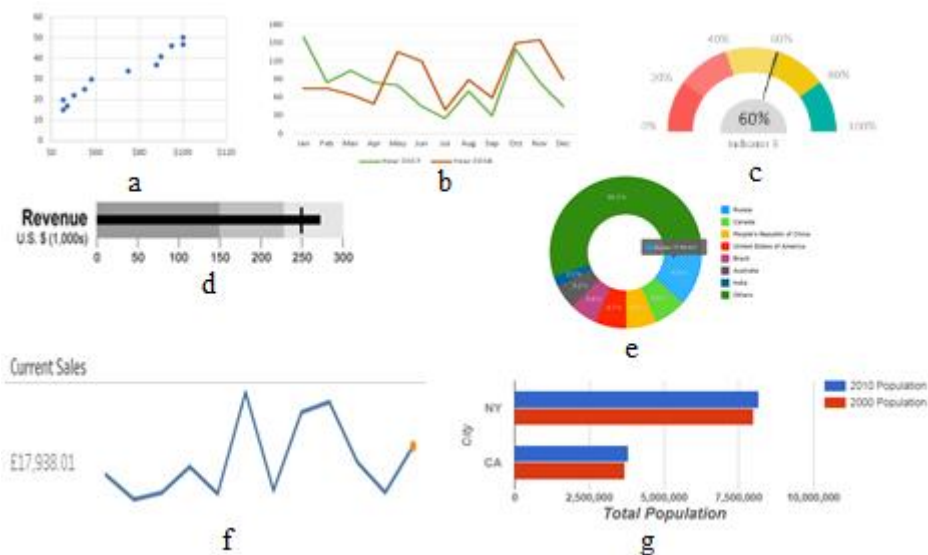| **Visualization tool**	Bar chart	Line chart	Bullet graph	Scatter chart	Sparkline	Gauge	Pie chart
Value	53%	46%	25%	23%	22%	12%	10%

Figure 2 - Platforms which allow generating custom analytics dashboards:
a – Scatter chart; b – Line chart; c – Gauge; d – Bullet graph; e – Pie chart; f – Scatter chart; g – Bar chart

PDCA is a four-step iterative process applied in business management for the control of processes and continuous quality improvement of products [5]. The method's name Plan-Do-Check-Act clearly defines the logical sequence of four stages that must to be realized:

1. On the Plan stage manager defines a problem and compose the plan of measures on its elimination.

2. On the Do stage developed solutions are applied in a real work and their correctness is tested.

3. The Check stage includes verification whether the problem is really solved; the results are measured and compared with planned objectives.

4. On the Act stage is realized a work with identified problems by determining their root causes and implementing the countermeasures, if the results suit requirements, the new concept is standardized, documented and implemented [5].

With help of applying the regular verifications before, during and after the manufacturing process, as well as with introduction the liability for quality, can be detected the weaknesses in different processes on the enterprise. PDCA serves exactly for detection the causes of defects and supports the whole process until to elimination these defects. Dashboards usage allows users to implement comprehensive support for the requirements of the PDCA cycle in the management of business processes.

Conclusion and future work

The reason why dashboards belong to the most popular business intelligence software solutions out there is not because they are easier to implement or cheaper than they were before. The main reasons why so many people use them are because of their usability, efficiency and the fact that they can help users make actionable decisions. Future work in this research field includes:

1. Identification of mapping between KPIs, their types, and possible visualization charts.

2. Implementation of intelligent support for the inference of recommendations which visual charts should be used to display KPIs of certain types.

3. Development of the corresponding software tool and its usage to solve the considered problem.

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