

USING TECHNOLOGIES IN THE PROCESS OF TAKING DECISIONS IN BUSINESS

*Ana Maria Mihaela IORDACHE¹
Ionel IACOB²*

Abstract: *In the midst of today's rapid change, timely and appropriate data needs to be collected and analyzed regularly instead of arbitrarily or haphazardly for business decisions and for business analysis and strategy. Despite the importance of systematic intelligence activities, both in academia and the business world, they are still trying to find a footing. When businesses aim to be more data-driven, efforts will increase in data sharing and collaboration. Visualization of data will be even more critical for groups and divisions to work together. The paper includes in the first part a short overview about the main business intelligence techniques. In the second part we present a customer relationships management software (hubspot) as an instrument for taking decisions in business.*

Key words: *CRM, business intelligence, database, digital economy, software*

An overview of business intelligence used techniques

Business Intelligence (BI) is the process of using existing technologies, programs, and application to collect, combine, and analyze data and then the presentation of this information. This helps top management of a company, including executives and managers, to make well-informed and important business decisions. "Business Intelligence systems are data-driven Decision Support Systems (DSS)" [1]. Simply put, Business Intelligence in the process of transforming raw abstract data into information in a usable form for the end users [3]. The implementing of BI in a business can give them a competitive advantage. This is reasonable to expect because it provides users with operational information, in an effect time efficient manner; this could be through queries to form reports. These applications provide historical, present, and future observations of a company's business dealings. Initially BI applications and tools were used IT individuals like data analysts. With the introduction of Self-Service Business Intelligence (SSBI) users can get access to information without needing prior IT experience or involvement. The result is freedom and flexibility in how the information can be utilized. With the need for any business to now be able to survive in the global market, having a well-integrated BI system can mean the rise or demise of a company. We see that the

¹ Lecturer PhD, Romanian-American University

² Lecturer PhD, Romanian-American University

amount of data a company can collect as of present can be overwhelming and would be near to impossible for a human to mine through it all for useful information, then factoring in the margin of human error. This would also require a business to keep up with the latest technologies and applications of business intelligence. Business intelligence data is usually stored in a data warehouse or in smaller data marts containing the details of a client.

In connection with the progressive importance of business intelligence, Gartner predicted that because of failure to adapt to the environment and implement the necessary business intelligence software or strategies, 35 percent of the world top 5,000 businesses would not be able to make informed decisions with regards to huge changes and developments in their industry and markets [3]. Also, that 40 percent of the company budget would be used in connection with business intelligence. This is because the purpose of business intelligence is to better the company by making the way they access data and how that data is utilized to the company's benefit and profit. The data acquired can give the business insight into the nature of their operations. This then allows for the business to create and make strategic decisions that lead to better management of resources, increase in revenue, the growth of the company, which result is a sustainable profit.

Listed below are a few additional advantages of business intelligence:

- Substantially increase in revenues
- Competitive advantage over market rivals
- Identification of business problems that need attention
- Display of market trends
- Quicker and more accurate decisions made, and
- Improved internal harmony of company.

There are numerous tools of data analysis and business intelligence that target different aspects. Some include Ad hoc analytics, Online analytical processing (OLAP), Mobile BI, Real time BI, Operational BI, Software-as-a-service BI (SaaS BI), Open source BI (OSBI), Collaborative BI, and Location intelligence (LI) [5]. Below a few of these are elaborated:

- **Data visualization tools:** Data visualization has to do with presenting information in a visual to highlight the significance. The most common data visualization tools are the graphs and charts in Microsoft Excel. There are more complex tools for example info-graphics, sparklines (embedded line graph showing a trend), and detailed fever charts (graph showing change of a variable over time). Data visualization tools play an important role in the simplification data and analytics and making data-driven insights available to employees in every section of an organization. It also improves analytics because it is easier to interpret visual than numerical output. Users have the option of a variety of data visualization tools on how

to present any type of data. They have been advanced in some tools that automatically interpret data and present them in the appropriate visual.

- **Real Time BI:** This allows for up-to-date data by putting transactions into a real-time data warehouse and BI system. It supports quick decision making, for example like up-to-date inventory values for online shopping. Real-time does not have to be implemented at every part of the business process. Real-time are also highly expensive. Weekly, monthly, and yearly reports are used by most business to meet their goals, for example for year to year comparison.
- **Collaborative BI:** The process of joining business intelligence software with tools like Web 2.0 tech, to improve decisions. Collaborative BI can be extended to enterprise-wide reporting and evaluation, making the process of collaboration simpler and allowing more effective decision-making between team members who may have worked independently to reach conclusions. Examples of these are SAP, Lotus Notes, and Microsoft SharePoint.
- **Key Performance Indicators (KPIs):** Metrics used to track factors that success is dependent on. The focus is on business processes that top management deem as most important in accomplishing the objectives of the corporation. Different companies have different KPIs that they prioritize, some focus on the number of new customers for example. Without KPIs, it would be impossible for the managers of an organization to evaluate this in a meaningful manner and then make organizational adjustments to resolve performance issues. Usually, BI applications integrate advanced forms of analysis, such as data mining, predictive analysis, text mining, statistical analysis, and big data analysis. It could also be difficult to keep employees focused on company projects and responsibilities that are essential to organizational performance without designating KPIs to demonstrate the importance and value of such activities. KPIs that measure business results, such as quarterly profit and revenue growth, are referred to as lagging indicators as they track things that have already happened.
- BI dashboard development tools and quality scorecards showing visualized business measurement information. A Power BI dashboard is a single page that uses visualizations to tell a story, also called a canvas. Because it is limited to one page, there is only the most important elements of that story in a well-designed dashboard.

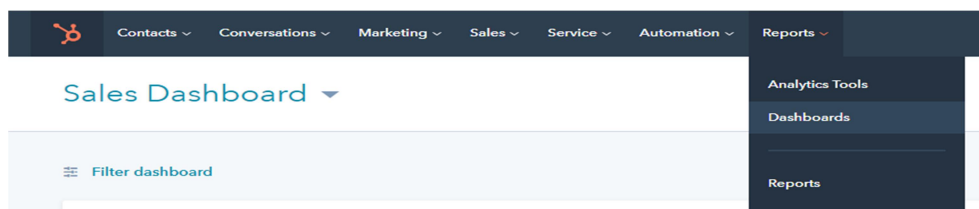
Decisions are the main force of business intelligence. The success of a decision made by the management of a company can affect the business future in the positive or negative. There are two types of decision a company can make: strategic and operational. Strategic decisions must identify the target markets, the key skills required, involvement in the value chain, competitiveness, and financing. Few examples of strategic decisions can be: should we enter a certain market, how

should we model our new product, what partners we should choose and which distribution channels. Operational decisions are determinations made by companies on a regular basis, a choice or estimation of an outcome that relies on a variety of prevailing circumstances (inputs) and ultimately has a notable impact on an organization's behavior. This has led to the development of a field of business called Decision management, also known as Enterprise Decision Management (EDM) or Business Decision Management (BDM). This encompasses all aspects of designing, constructing and managing automated decision-making systems used by an organization to manage its interactions with customers, employees and suppliers [8]. Intelligent decision support systems have the huge potential to transform the human decision-making by integrating research into artificial intelligence, IT, and process engineering. Communication and collaboration between distributed systems can provide a human decision-maker with just-in-time data, real-time storage, collaborative environments, and globally up-to-date information [10]. Computerization has changed the way companies approach their decision-making because it involves automating more decisions, managing response times and unattended computerization-required activity, and allowing "information-based decisions" – decisions based on historical behavioral data analysis, previous decisions, and their outcomes.

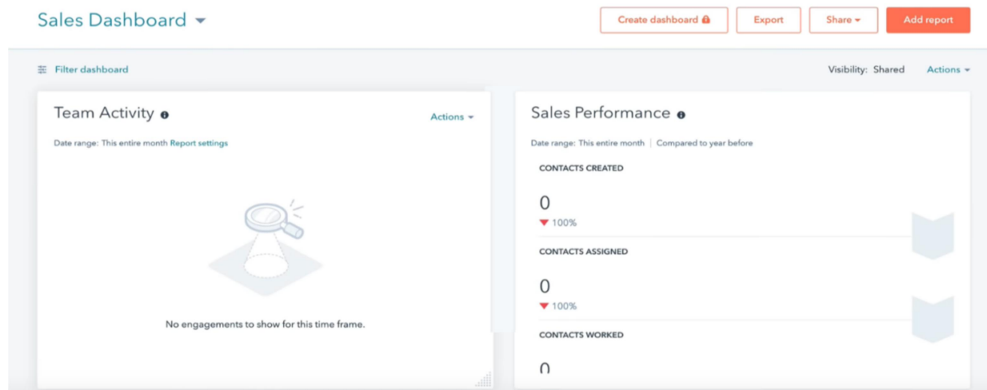
To tackle the challenge of making informed decisions there was a need for decision making software. Decision-making software (DM software) is computer application technology that helps individuals and organizations make choices and make decisions, usually by rating, prioritizing or choosing from a variety of options. DM tools can help those making decisions at different stages of the decision-making process and include the problem exploration and formulation, the identification of decision alternatives and the solution constraints. Also it includes the structure of preferences and tradeoff the judgements.[9].

HubSpot – an instrument of business intelligence

Hubspot is a CRM (Customer relationship management) software that manages a company's interactions and relationships with both current and potential customers. When launching Hubspot, the first thing to get acquainted with is the dashboard. Whether the user press the Hubspot logo or go all the way to Reports and Dashboards, he will be able to access the dashboards.

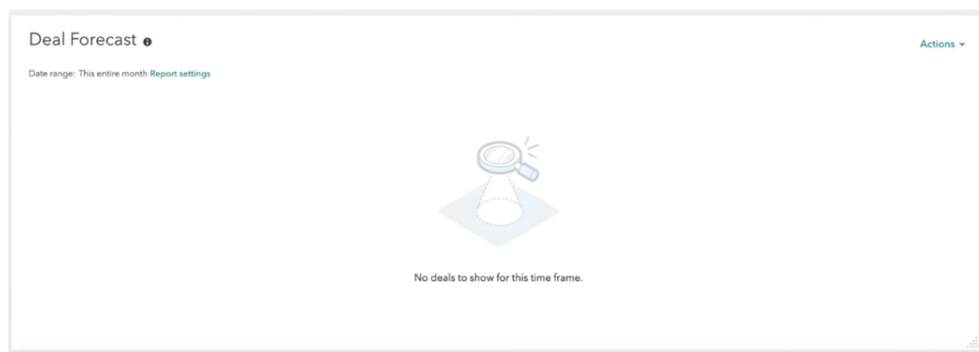


This is the first place where it can be seen what is the status regarding the business, the sales, the marketing and so on. The user can move the different tabs around and customize them according to the liking by just dragging them for an easier use.



The Team activity window is a report that will always show the 20 most recent activities that the sales team is doing. Use it to see specific tasks, emails, meetings, and calls that the team is completing.

The Sales performance window will show the reports of the sales progress. It shows contacts that have been assigned and worked by users in the CRM, and the number of deals that have been created and closed won. Use this report to get a good understanding of how the sales pipeline is progressing in the selected time range.

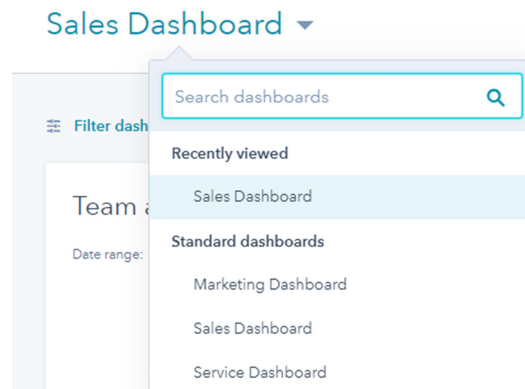



The Deal forecast tab represents a standard report on the sales dashboard, which shows the amount of revenue for deals in each stage of the deal pipeline. The forecasted revenue is calculated by multiplying the deal amount by deal stage probability.

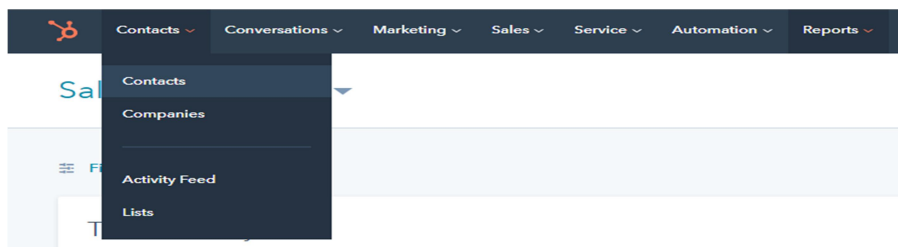


The Deals Closed versus Goal window shows revenue from closed deals, compared to the user team’s quota or a custom goal. Use this report to track the team’s progress over time and to help set better sales goals.

The Productivity window is a report that shows the total number of calls, emails, notes, tasks, and meetings that the team has conducted in the selected time frame. Use this report to get a better understanding of how productive the team is with their sales activities.



The user can search and customize different dashboards. Look out for this logo () and hover on it to get information and detailed explanation at what it is looking at. On the top left of the screen there are different drop down menus. The First one is Contacts that presents the people who work for the company.



Contacts

Search for a contact

<input type="checkbox"/>	NAME	PHONE NUMBER	CONTACT OWNER	LAST ACTIVITY DATE (GM...)	LAST CONTACTED (GM...)
<input type="checkbox"/>	Yolando Luczki	315-304-4759	Paul Nicholson (paul@pa...	-	-
<input type="checkbox"/>	Ty Smith	201-672-1553	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Tiffany Steffensmeier	305-385-9695	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Ruthann Keener	830-258-2769	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Rolland Francescon	973-649-2922	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Paris Wide	404-505-4445	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Marvel Raymo	979-718-8968	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Whitley Tomasulo	817-526-4408	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Ma Layous	203-721-3388	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Tammara Wardrip	650-803-1936	Ian Installs (ian@paulnich...	-	-
<input type="checkbox"/>	Tasia Andreason	201-920-9002	Ian Installs (ian@paulnich...	-	-

To create a new contact the user must press the “Create contact” button on the top right hand corner of the screen and fill out a menu. The “Companies” option represents the business, the people who get the invoices. Once the user goes to companies, it will appeared a list of the companies.

Companies

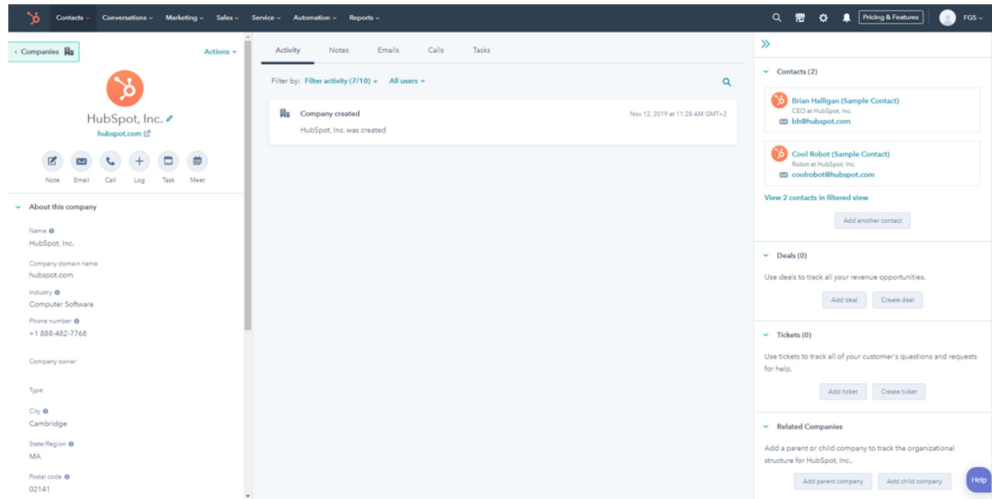
Search for a company

<input type="checkbox"/>	NAME	CREATE DATE (GMT+1)	FIRST CONTACT CREAT...
<input type="checkbox"/>	zohopayments.com		-
<input type="checkbox"/>	Gravatar		-
<input type="checkbox"/>	Zoho Corporation		-
<input type="checkbox"/>	WordPress		-
<input type="checkbox"/>	Twitter	<input type="button" value="Preview"/>	-
<input type="checkbox"/>	Zoho Corporation Pvt. Ltd		-
<input type="checkbox"/>	vidIQ		-
<input type="checkbox"/>	PayPal		-
<input type="checkbox"/>	Teachable		-
<input type="checkbox"/>	Selectron Ltd.		-
<input type="checkbox"/>	ServiceLedger		-

Similarly to Contacts, all the user need to do to add/create a company is go to “Create Company”. When clicking on a certain company, the software will take to their profile.

This is the place from application where the user will spend most of the time – it can be create notes, tasks for and write emails to the companies.

Here it can also been seen which contacts are related to that company, as well as what deals the user has with them. If there are some customers requiring help with a problem related to this, the user can also find it here.



Contacts (2)

-  **Brian Halligan (Sample Contact)**
CEO at HubSpot, Inc.
bh@hubspot.com
-  **Cool Robot (Sample Contact)**
Robot at HubSpot, Inc.
coolrobot@hubspot.com

View 2 contacts in filtered view

Add another contact

Deals (0)

Use deals to track all your revenue opportunities.

Add deal Create deal

Tickets (0)

Use tickets to track all of your customer's questions and requests for help.

Add ticket Create ticket

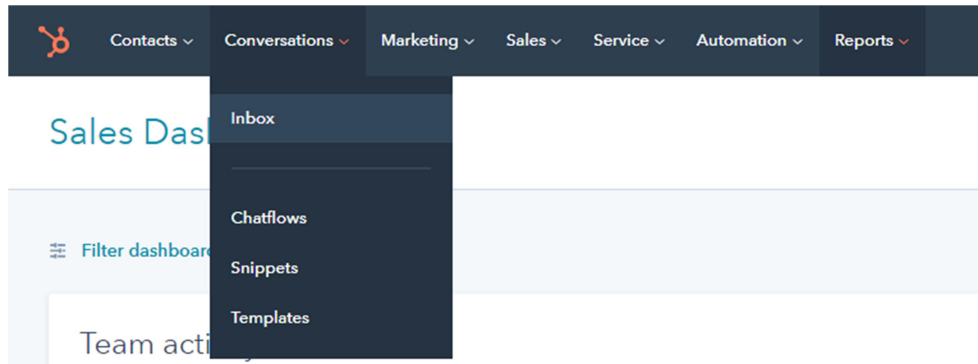
Related Companies

Add a parent or child company to track the organizational structure for HubSpot, Inc..

Add parent company Add child company



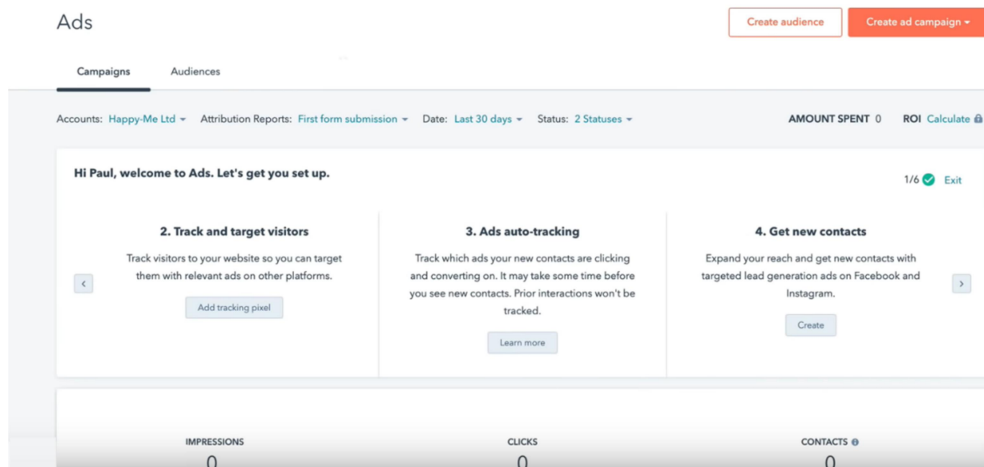
Under the conversations tab there is the Inbox, which contains all the conversations with other users and employees will be. It can also been created some Chat-flows, snippets and Templates, but this option is for a more advanced user of the software.



Also the user can compose and assign emails as well as link the personal email to the account. The software also gives the possibility to see the email addresses of people that contact the user, allows contacting them outside the software.

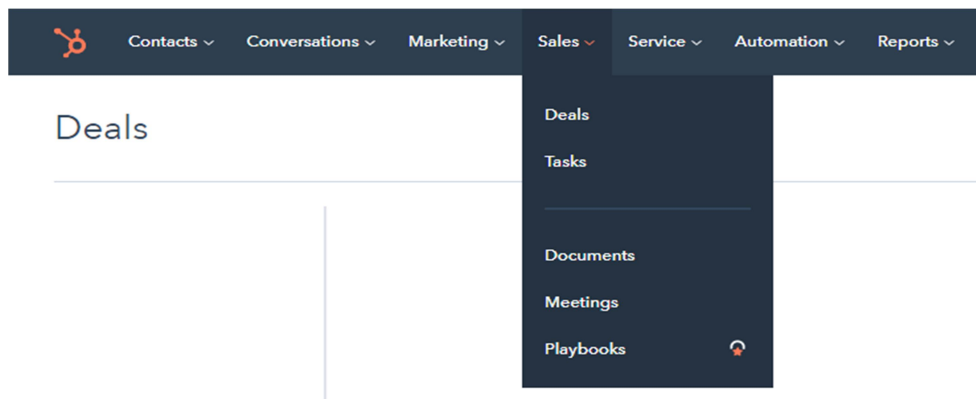
The inbox option of Hubspot is very similar to any other email platform therefore it is fairly easy to navigate.

Under the marketing tab there is the Ads tab. This is the place from application where the user can create ads and track their data, for example: visitors, clicks, conversions, impressions and others.

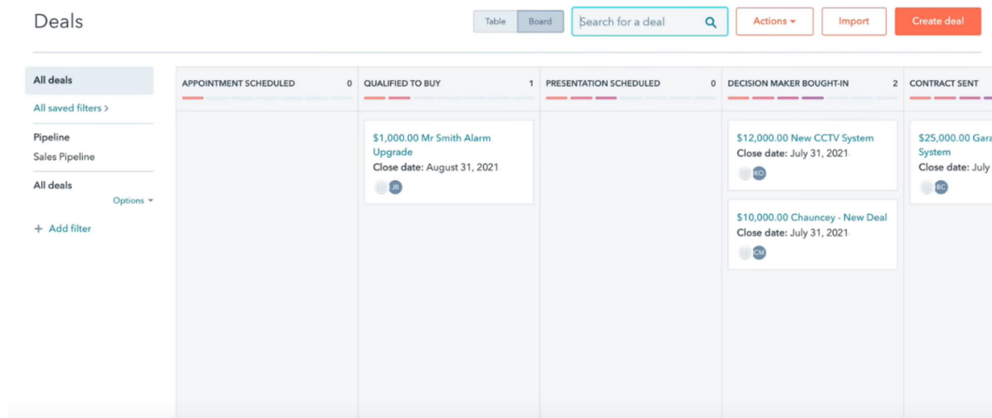


The next tab, and probably the most important one, is the Sales tab. This is basically what CRMs are here for – making deals, improving the management and the profits of a company.

The first sub-tab is the Deals one. There, user will find a timeline of the deals that currently have in place, regardless if it has just started the work on them or have already completed them.

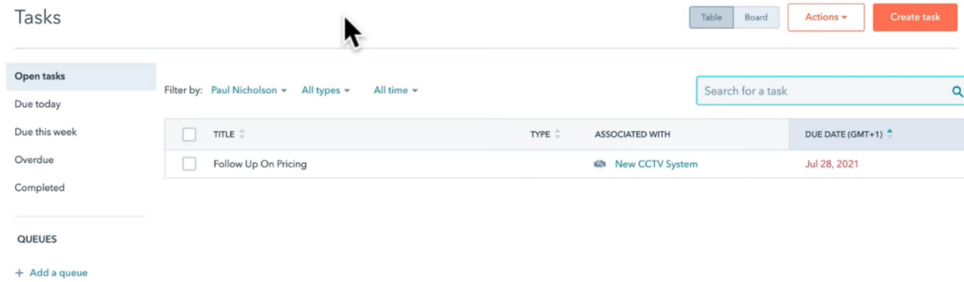


The timeline is well documented and very self-explanatory – from “Appointment scheduled”, which is the first ever time of talking to and have contact with somebody to “Closed won” or “Closed lost”, depending on whether the deal was successful or not.



The user can drag the tabs from column to column whenever that specific deal has progress. If it is wanted to create a deal, go on the top right hand corner and select “Create deal”. A menu window will pop-up and allows creating any sort of deal. After creating the certain deal it can be customized as well.

Under sales it can be also find the Tasks tab. Here it can be seen all the created tasks, including those that are for the day, week or those that are overdue.



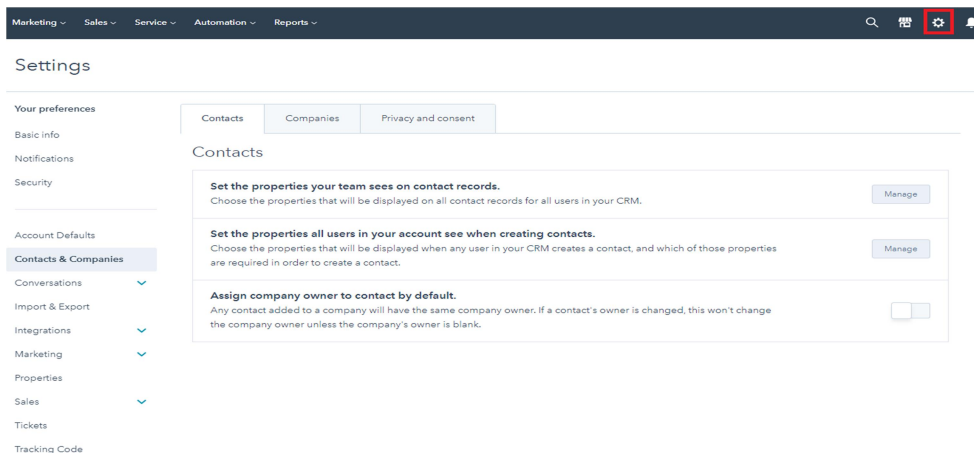
Right beneath it is the Meetings tab. This tab allows linking it with the user personal online calendar to facilitate the planning.

Next up is the Service and Tickets tab. This is where the customers create tickets if they have problems. The tickets can then assign those to members of the team so they can help the customers out.

An important facility of the Hubspot CRM is the search menu. From this menu the user can quickly search for anything on the program – contacts, companies, deals and others. This is very helpful for big companies with multiple employees and dozens of deals.



The settings menu allows customization the preferences and privacy settings depending on how the decision maker wants to use the program. It's also the place where the manager can edit all the info related to the company.



The notifications tab allows the user to see new messages, deals, tasks, issues and others about the work. A simple click on the notification icon will open the respective menu. The notification preferences can be edited, either through the previous notification tab or through the settings option in the notifications menu.

The options of purchasing a plan will give some additional options and tools within the software. This is features is mostly recommended for advanced and experienced users of the platform.

Conclusion

Business intelligence continues to evolve depending on business needs and technology, so it should be identify current trends every year to keep users up to date on innovations. Realize that artificial intelligence and machine learning will continue to grow, and companies will be able to integrate artificial intelligence expertise into a wider business intelligence strategy. Business intelligence software results are, in our opinion, essential for effective measuring using performance indicators across all levels of management. The ability to have and analyze both past and present information is crucial to a company's success. Company should be looking into investing in their business intelligence if they want to have a chance to survive in the ever-changing global economic system.

References

- [1] Dedić N. & Stanier C. (2016). "Measuring the Success of Changes to Existing Business Intelligence Solutions to Improve Business Intelligence Reporting"(PDF). Measuring the Success of Changes to Existing Business Intelligence Solutions to Improve Business Intelligence Reporting. Lecture Notes in Business Information Processing. Lecture Notes in Business Information Processing. 268. Springer International Publishing. pp. 225–236
- [2] Duan, L., & Xu, L. D. (2012). Business Intelligence for Enterprise Systems: A Survey. IEEE Transactions on Industrial Informatics, 8(3), 679-687. Retrieved 11 11, 2019, from <https://ieeexplore.ieee.org/document/6156777>
- [3] Gartner Reveals Five Business Intelligence Predictions for 2009 and Beyond. gartner.com. 15 January 2009
- [4] <http://www.luxmagi.com/what-is-a-business-decision/>
- [5] <https://docs.microsoft.com/en-us/power-bi/consumer/end-user-dashboards>
- [6] <https://olap.com/learn-bi-olap/olap-bi-definitions/business-intelligence/>
- [7] <https://searchbusinessanalytics.techtarget.com/definition/business-intelligence-BI>
- [8] <https://www.cutter.com/?q=article/enterprise-decision-management-431556>
- [9] Phillips-Wren, Gloria & Ichalkaranje, Nikhil & Jain, Lakhmi. (2008). Intelligent Decision Making: An AI-Based Approach. 10.1007/978-3-540-76829-6.

- [10] Weistroffer, HR, and Li, Y, "Multiple criteria decision analysis software", Ch 29 in: Greco, S, Ehrgott, M and Figueira, J, eds, Multiple Criteria Decision Analysis: State of the Art Surveys Series, Springer: New York, 2016.
- [11] Pirttimaki, V.. (2007). Conceptual analysis of business intelligence. SA Journal of Information Management. 9. 10.4102/sajim.v9i2.24.
- [12] <https://app.hubspot.com/home-beta>
- [13] <https://www.impulsecreative.com/learn/hubspot-reporting-features>