

Dashboard

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Agenda

- Definition of Dashboard,
- Their type
- Evolution of dashboard
- Dashboard design and principles
- Display media for dashboard.

Dashboard

- A data dashboard is an information management tool that visually tracks, analyzes and displays key performance indicators (KPI), metrics and key data points to monitor the health of a business, department or specific process.
- They are customizable to meet the specific needs of a department and company.
- Behind the scenes, a dashboard connects to your files, attachments, services and API's, but on the surface displays all this data in the form of tables, line charts, bar charts and gauges.

Dashboard

- A data dashboard is the most efficient way to track multiple data sources because it provides a central location for businesses to monitor and analyze performance.
- Real-time monitoring reduces the hours of analyzing and long line of communication that previously challenged businesses.

How dashboard works?

- Everyone uses data dashboards differently. Not all business dashboards serve the same purpose, which is why it's important users understand what KPIs to track and why.
 - What kinds of business questions do dashboards answer?
 - What type of data are tracked on dashboards?
 - How are dashboards interactive?

Business Questions

- The best data dashboards answer important questions about your business. Unlike advanced business intelligence tools, dashboards are designed for quick analysis and informational awareness. The most common approach to designing a business dashboard is to build it using a question-answer format.
 - What's our Quick Ratio? Where is our Quick Ratio compared to where it should be?
 - How many calls has the call center done this week? Was it more or less than last week?
 - What are the top 5 products in Sales Revenue? Where are there opportunities?
 - What are the traffic sources to the website? Has there been an increase in search?
 - What does our marketing funnel look like? Is it on target?

Operational and Analytical Data

- The business questions a dashboard answers depends on industry, department, process and position.
- Analytical dashboards are typically designed to help decision makers, executives and senior leaders, establish targets, set goals and understand what and why something happened with the same information they can use to implement appropriate changes.
- An analytical dashboard does this based on insights from data collected over a period of time determined by the user (i.e. last month, quarter or year).

Interactive Data Visualization

- Data is visualized on a dashboard as tables, line charts, bar charts and gauges so that users can track the health of their business against benchmarks and goals.
- Data dashboards surface the necessary data to understand, monitor and improve your business through visual representations.
- Depending on how you decide to design your dashboard, even straightforward numerical data can be visually informative by utilizing intuitive symbols, such as a red triangle facing downward to indicate a drop in revenue or a green triangle facing up to indicate an increase in website traffic.

Dashboards in BI

- Dashboards are a data visualization tool that allow all users to understand the analytics that matter to their business, department or project.
- Even for non-technical users, dashboards allow them to participate and understand the analytics process by compiling data and visualizing trends and occurrences.
- Data dashboards provide an objective view of performance metrics and serve as an effective foundation for further dialogue.
- A dashboard is a business intelligence tool used to display data visualizations in a way that is immediately understood.

Why to visualize on dashboard?

- Monitor Multiple KPIs and Metrics at Once
- Easy to Read
- Cloud Accessibility - Share you dashboard With Everyone
- Dashboards make reporting more efficient

Monitor multiple KPIs & Metrics

- Changes to any aspect of a business, whether it be in marketing, sales, support, or finance, has an impact on the business as a whole.
- People have been monitoring their businesses without dashboards for ages, data dashboards make it a heck of a lot easier.
- With dashboards, users are able to dig deeper into the big picture to correlate this impact alongside specific KPIs and metrics to understand what works and what doesn't.

Monitor multiple KPIs & Metrics

- Whether your businesses data is stored on a web service, attachment or API, a dashboard pulls this information and allows you to monitor all your data in one central location.
- Additionally, dashboards are capable of correlate data from different sources in a single visualization if the user so chooses.
- By monitoring multiple KPIs and metrics on one central dashboard, users can make adjustments to their business practices in real time.

Easy to read

- Dashboards display KPIs and metrics using visualizations like tables, line charts, bar charts and gauges.
- Effective dashboard design utilizes colors, symbols and visualizations to highlight important data points
- This allows users to quickly scan a dashboard and get the information they need without sifting through spreadsheets, emails, or signing into a web service.
- Data dashboards are useful because they visualize information in a way that is accessible to everyone.
- Even if you don't work in marketing, eg, you can understand their numbers. This is key: You do not have to be an analyst to use and understand a data dashboard.

Cloud accessibility

- A dashboard keeps every member of a business on the same page. Users can share dashboards in real-time and periodically.
- Dashboards bring a business's data to the cloud, making key metrics and KPIs accessible to your entire time on desktop, mobile and tablet.
- There are a number of ways to share data dashboards: on wallboard tv's, email reports, printable reports or direct access.

Cloud accessibility

- Users can create a public link to their dashboard which gives anyone access, or through private link that allows only those with the link to access your data.
- It has become increasingly popular to display dashboards on wallboard tv's in offices as a way to keep everyone on the same page about performance and objectives.
- Data dashboards are becoming increasingly common because they allow for virtual work environments and make it easier for teams to collaborate.

Efficient Reporting

- Data dashboards save time. Users no longer need to go to multiple, disconnected, sources to track their data.
- Getting the data, creating a spreadsheet, generating and designing the report, and sharing it -- dashboards do all this automatically.
- There are a number of reasons why reporting is typically done at the end of the month, one being because it takes up time and resources.

Efficient Reporting

- All you need to do is invest a bit of time setting up your dashboard, which is peanuts compared to what a typical manual reporting will take.
- Dashboards can automatically generate reports with it's data, at anytime, anywhere. No longer do users need to gather, analyze and format data.
- You can create PDF, email and live reports using a dashboard: choose the KPI you want to analyze, select your report format and present.

Types of dashboard

- Operational dashboards
 - tell you what is happening now.
- Strategic dashboards
 - track key performance indicators.
- Analytical dashboards
 - process data to identify trends.
- Tactical dashboards
 - used by mid-management to track performance.

Strategic Dashboard

- A strategic dashboard is a reporting tool for monitoring the long-term company strategy with the help of critical success factors.
- They're usually complex in their creation, provide an enterprise-wide impact to a business and are mainly used by senior-level management.
- Strategic dashboards are commonly used in a wide range of business types while aligning a company's strategic goals.

Strategic Dashboard

- They track performance metrics against enterprise-wide strategic goals.
- As a result, these dashboards tend to summarize performance over set time frames: past month, quarter, or year.
- When the strategic dashboard is properly developed, designed, and implemented, it can effectively reduce the amount of time needed to accomplish a specific business key performance indicator, while reducing operational costs.

Strategic Dashboard

- Although they can provide opportunities for specific departments' operations and further analysis, strategic reports and dashboards are usually fairly high-level.
- As mentioned, senior members of a team can identify strategic concerns fairly quickly and provide comprehensive strategic reports with the analyzed data.
- The importance lies in analyzing management processes, using common qualitative and quantitative language, and identifying a specific system, which has to be incorporated into the dashboard so that every decision-maker understands the presented data.

Strategic Dashboard: Types

- Management strategic dashboard
- CMO strategic dashboard
- CFO dashboard for strategic planning

Management Strategic Dashboard

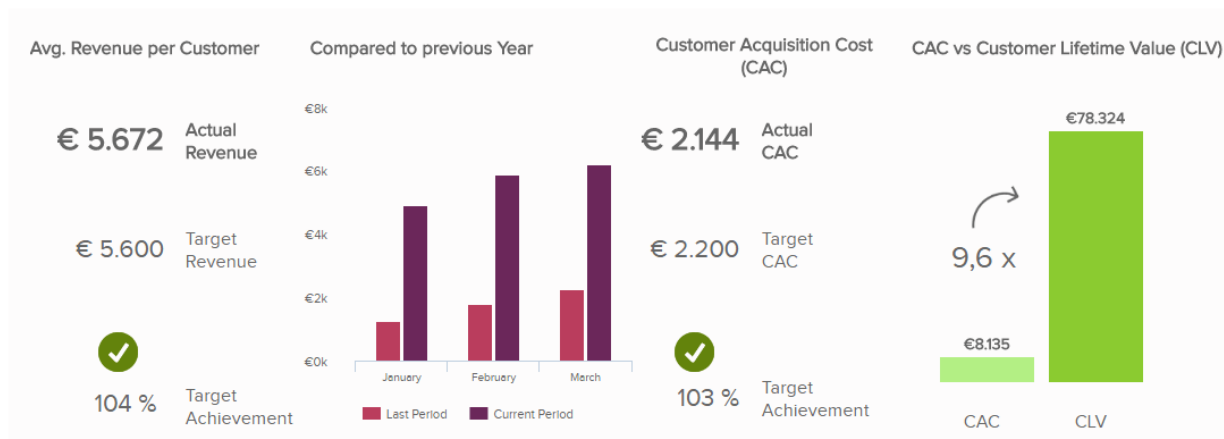
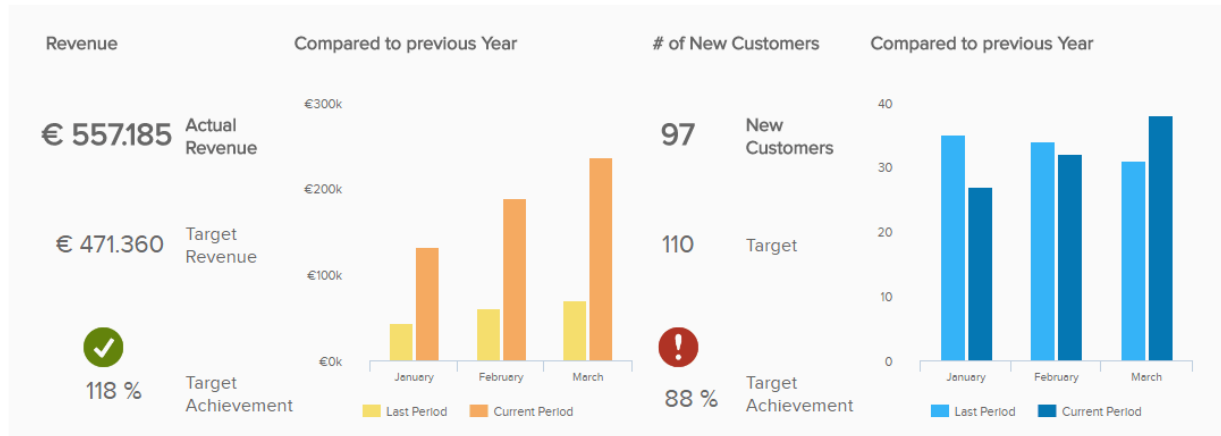
- This management dashboard below is one of the best strategic dashboard examples that could easily be displayed in a board meeting.
- It isn't cluttered, but it quickly tells a cohesive data story. The dashboard focuses on revenue in total as well as at the customer level plus the cost of acquiring new customers.
- The dashboard is set to a specific time frame and it includes significant KPIs: customer acquisition costs, customer lifetime value, and sales target.

Management Strategic Dashboard

- This dashboard answers the following: What is my customer base and revenue compared to this time last year?
- While addressing specific values, incorporating specific key performance indicators, and using a common qualitative and qualitative language, this dashboard represents the management board clear value and specific course of action, while using comparison metrics and analysis.

Management Strategic Dashboard

Revenue and Customer Overview - Q1 2016



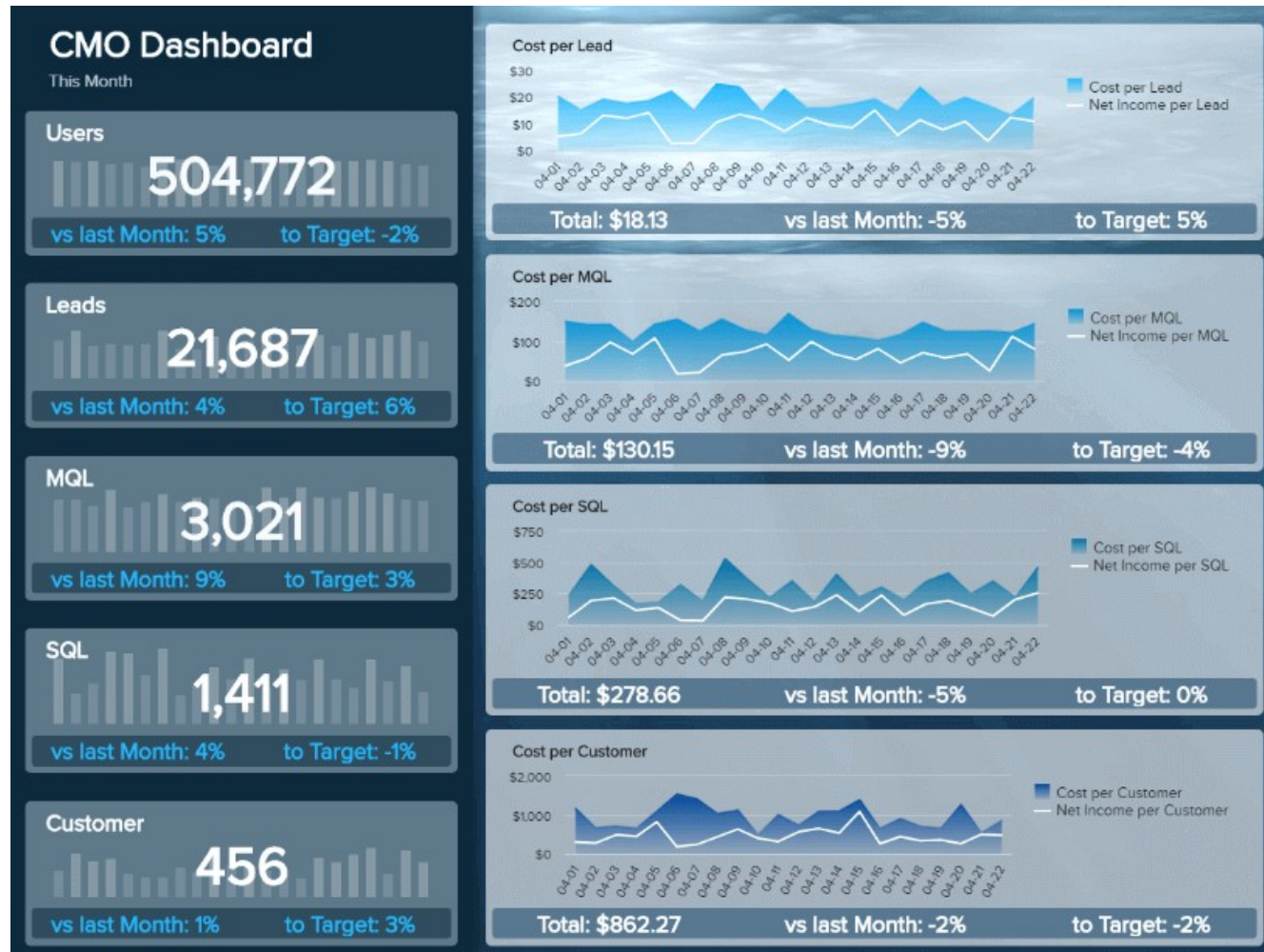
CMO Strategic Dashboard

- Another example comes from the marketing department.
- Chief Marketing Officers (CMOs) often don't have time to check numbers such as traffic or CTR of certain campaigns.
- But they do need to have a closer look at a more strategic level of marketing efforts, even cooperating with sales to reach the best possible marketing results a business can have, and, therefore, generate profit.
- This marketing dashboard shows these important strategic KPIs in a visual, informative, and straightforward way.

CMO Strategic Dashboard

- The strategic dashboard example above expounds on the cost of acquiring each customer, leads, MQL, and compares them to previous periods and set targets.
- A CMO must have a birds-eye view of the strategic goals so that he/she can react promptly and keep the department's results under control.
- An executive can immediately see where his/her targets are, which gives them the ability to drill down further into these marketing KPIs and see what can be improved in the overall marketing funnel.

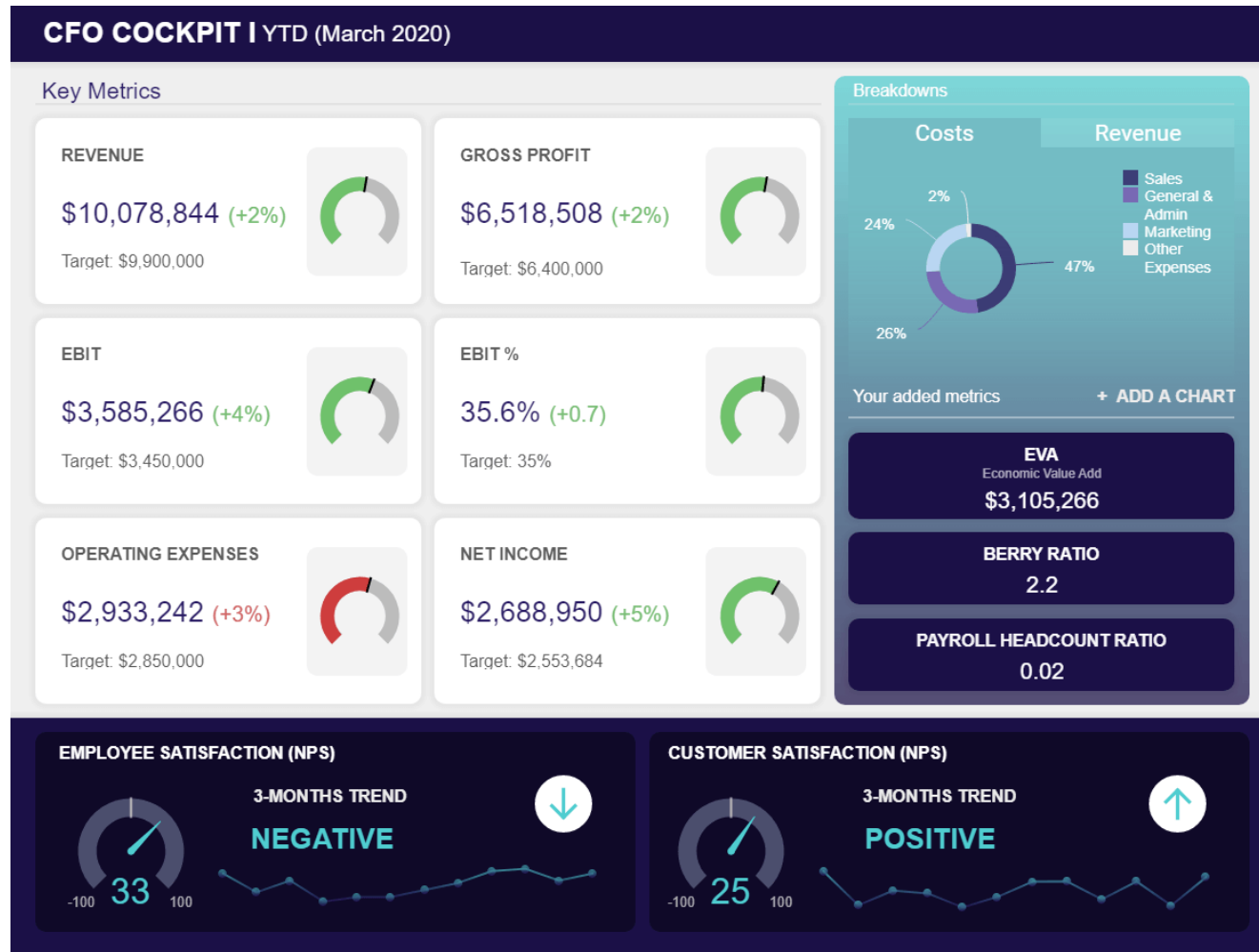
CMO Strategic Dashboard



CFO Strategic Dashboard

- Chief financial officers need to keep a company's strategy on track, monitor the financial performance closely, and react when there are deviations from strategic goals and objectives.
- But not only, as the finances of a company are affected also by non-direct factors such as employee and customer satisfaction.
- For example, if employees are not satisfied with their working environment, they can call in sick or leave the company which will cause financial bottlenecks. But let's take a closer look at what kind of dashboards for strategy CFOs need.

CFO Strategic Dashboard



CFO Strategic Dashboard

- Let's continue with more details on the right of the dashboard.
- The costs are visualized through a percentage breakdown depicting sales, general and admin, marketing, and other expenses.
- Here we can see that sales use up most of the costs, followed by general and admin. Maybe there is space to eliminate some costs but be careful not to cause the opposite effect.

Operational Dashboard

- An operational dashboard is one of the types of dashboards used for monitoring and managing operations that have a shorter time horizon.
- Since they focus on tracking operational processes, they're usually administrated by junior levels of management.
- Their value in today's digital age lies in the fact that businesses start to realize the importance of fast and correct data between operational teams and departments.

Operational Dashboard

- These kinds of dashboards are arguably the most common ones. They are mostly used for monitoring and analyzing a company's activities in a given business area.
- These dashboards are usually focused on alerting about business exceptions and are based on real-time data. Operational metrics dashboards usually end up in the hands of the subject matter experts.
- This often leads to more direct action, then further analysis. Because of this, operational dashboards often are more detailed than strategic dashboards.
- They can also provide operational reports with a more detailed view of specific data sets.

Operational Dashboard Types

- Marketing operational dashboard
- LinkedIn operations dashboard
- Customer service operational metrics dashboard

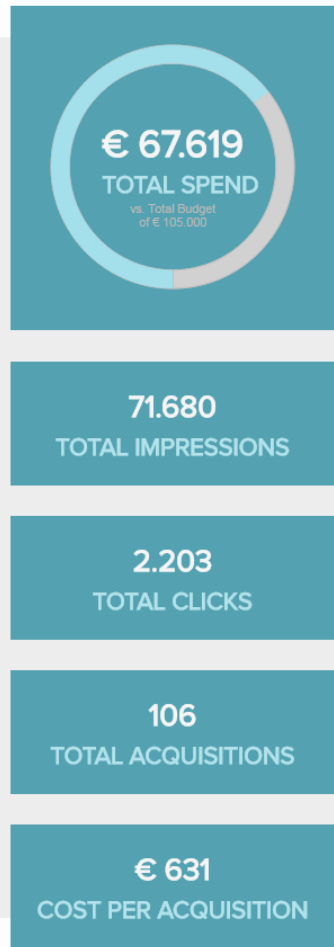
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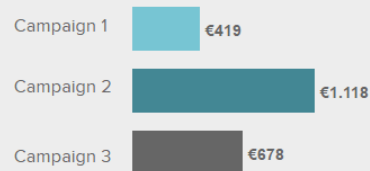
Marketing Operational Dashboard

- The marketing performance dashboard above is one of our top operational dashboard examples.
- It shows the performance of 3 campaigns over the past 12 weeks.
- It provides important operational information and key performance indicators for the marketing team on cost per acquisition, the total number of clicks, total acquisitions gained, and the total amount spent in the specific campaign.
- Any significant changes would immediately alert the marketing team.
- Why is it useful? Because a fast-paced marketing department or agency can adjust their operational activities based on real-time data and teams don't have to wait for extensive, traditional reports and analysis presented in a spreadsheet.

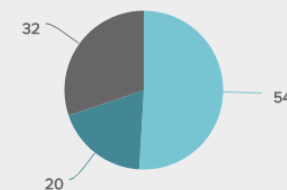
Marketing Operational Dashboard



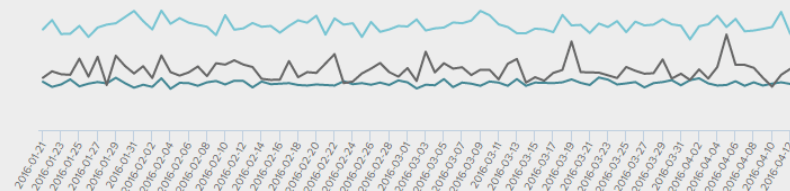
CPA by Campaign - Last 12 weeks



Acquisitions by Campaign - Last 12 weeks



Daily Impressions by Campaign - Last 12 weeks



LinkedIn Operational Dashboard

- We continue our list of operations dashboard examples with LinkedIn.
- This social media network is critical for building business relationships, either on a profile level or company.
- With the number of users steadily growing and reaching more than 610 million members in 2020, LinkedIn should be on a higher priority for companies that want to reach decision-makers and business professionals.

LinkedIn Operational Dashboard

- To effectively manage a company's presence, companies can use an operational data dashboard that will solve multiple social media problems such as automation, customization of reports, and provide advanced analytical features.
- Let's take a look at an operational dashboard design example specifically created for LinkedIn.

LinkedIn Operational Dashboard

LinkedIn Company Page

Last 90 Days ▼

Followers Gained



4,789

Total Followers



+3.9%

Followers gained

Total Followers Gained



Engagement Rate



3.25%



1,529

Total Engagement



1,223

Likes



211

Comments



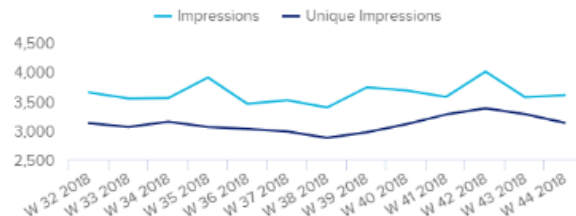
95

Shares

Engagement Rate



Impressions vs. Unique Impressions



Click Through Rate



3.71%

Click Through Rate

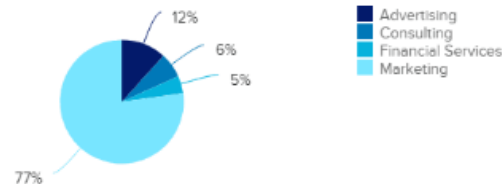


1,746

Link Clicks



Followers by Company Industry



Last 5 company updates

Update	Publication Date	CTR
How to track your finances in real time	2018-10-25	2.53%
The biggest benefits of business intelligence	2018-10-22	1.76%
10 Inspirational Dashboard Designs	2018-10-19	1.76%
How to Create Dashboards	2018-10-17	0.66%
Your Ultimate Guide To Modern KPI Reports	2018-10-12	1.81%

Customer Service Dashboard

- One of our next operational dashboard examples focuses on customer service.
- By having all the important customer service KPIs on a single screen, the team can manage its operations much more efficient.
- Let's see this through a visual example.

Customer Service Dashboard

- This type of a dashboard expounds on the customer service team's performance over a shorter timeframe, in this case, daily, with an additional monthly overview of the first, second, third call, and unresolved ones.
- We can see that the customer service dashboard is divided into 2 parts: the resolutions and the response time. Each day of the week gives an additional insight which helps teams to reduce the response time metric if they track it on a regular basis.

Customer Service Dashboard

Customer Service Team Dashboard

RESOLUTIONS

First Call Resolution

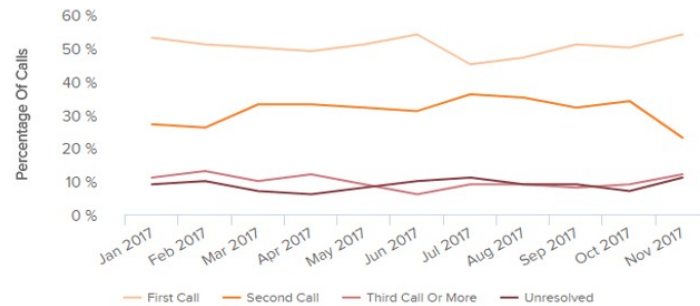


61%

Unresolved Calls



9%



RESPONSE TIME

Avg Response Time



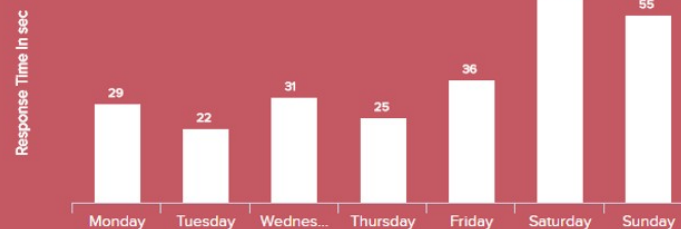
37 sec

Best Day To Call



Tuesday

Response Time By Weekday



Analytical Dashboard

- An analytical dashboard is a type of dashboard that contains a vast amount of data created and used by analysts to provide support to executives.
- They supply a business with a comprehensive overview of data, with middle management being a crucial part of its usage.

Analytical Dashboard

- The importance of an analytical dashboard lies within their impact on historical data usage, where analysts can identify trends, compare them with multiple variables and create predictions, and targets, which can be implemented in the business intelligence strategy of a company.
- They are often useful when complex categorized information is massive and broad, and need visualization to perform a clear analysis of generated data.

Analytical Dashboard Types

- Financial performance dashboard
- Procurement cost dashboard
- Analytical retail KPI dashboard

Financial Performance Dashboard

- In the example below, the analysis of the financial dashboard focused on performance can help decision-makers to see how efficiently the company's capital is being spent and to establish a specific operational task to structure future decisions better.
- With the important financial KPIs such as return on assets, return on equity, working capital, and the overview of the balance sheet, a finance department has a clear picture of their capital structure.
- This analysis dashboard enables the department to, consequently, set specific operational activities to improve further.

Financial Performance Dashboard

FINANCIAL PERFORMANCE DASHBOARD

RETURN ON ASSETS

17%



WORKING CAPITAL RATIO

3.2:1



RETURN ON EQUITY

32%



DEBT-EQUITY RATIO

0.4:1



BALANCE SHEET

TOTAL ASSETS € 1,342,091

Current Assets € 942,091

Cash € 238,126

Accounts Receivable € 458,863

Inventory € 245,102

Long-Term Assets € 400,000

TOTAL LIABILITIES € 1,342,091

Current Liabilities € 306,654

Accounts Payable € 200,558

Other Liabilities € 106,096

Shareholder Equity € 693,115

Common Stock € 470,000

Current Earnings € 223,115

Procurement Cost Dashboard

- Another dashboard focused on costs but, in this case, specifically for the procurement department.
- As we know, procurement is found in most companies as a function that connects a company with its suppliers, contractors, freelancers, agencies, etc.
- It's not only critical for industries such as manufacturing but service-oriented as well. To see the analytical perspective of a procurement department, let's take a look at a visual example.

Procurement Cost Dashboard

Cost of Purchase Order



€13.144

This Year



Cost Reduction



€483.941

This Year



Cost Savings



13,5%

This Year



Cost Avoidance



7,3%

This Year



Procurement ROI

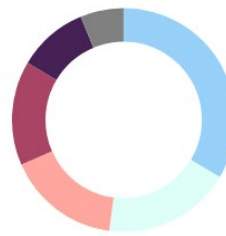


9,2

This Year



Cost Reduction

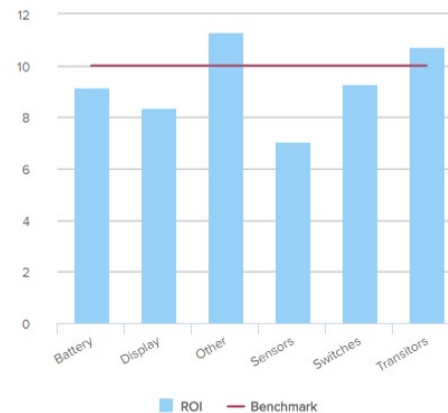


- Transistors €162.315
- Switches €89.673
- Sensors €79.305
- Battery €72.958
- Display €49.330
- Other €30.361

Procurement ROI

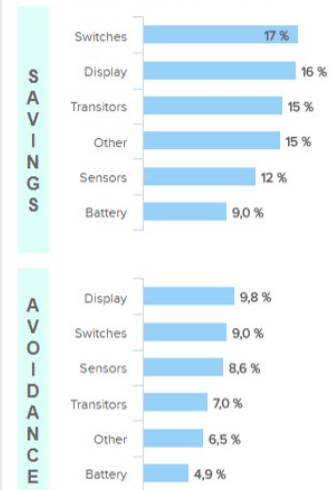
Costs of Procurement:

€52.536



Procurement Cost Management

Cost Savings & Cost Avoidance



Top 5 Supplier by Cost Reduction

Top	
Supplier 0793	€20.947
Supplier 0635	€18.852
Supplier 0147	€14.244
Supplier 0156	€12.568
Supplier 0789	€10.474

Procurement Cost Dashboard

- The procurement department handles large volumes of data and by analyzing the costs and purchase of the procurement cycle, analysts can present data that will provide a building block for different units in order to save invaluable time.
- A procurement dashboard as visualized above can serve as a tool to present data in a visual and straightforward manner.
- This kind of analysis is essential since procurement departments usually gather data from multiple sources such as ERP, databases, or CSV files, e.g.
- In order to optimize the cost management and increase the overall positive results, an analytic dashboard such as this one can prove to be beneficial.

Analytical Retail KPI Dashboard

- Another analytical dashboard example comes from the retail industry.
- It creates an analytical parallel between management and customer satisfaction since the supply chain can directly affect it.
- This comprehensive dashboard shows us an overview of important aspects of a retail business that enable analysts to identify trends and give management the support needed in business processes.

Analytical Retail KPI Dashboard



Analytical Retail KPI Dashboard

- As we can see on the retail KPI dashboard above, some of the crucial metrics such as rate of return (also depicted by category), the total volume of sales, customer retention rate, and the number of new and returning customers through a set timeframe, can give us a bigger picture on the state of the retail business.
- These retail KPIs can show how good you are in keeping your customers and developing brand loyalty, the management can clearly see which aspects of the business need to be improved

Tactical Dashboard

- A tactical dashboard is utilized in the analysis and monitoring of processes conducted by mid-level management, emphasizing the analysis.
- Then an organization effectively tracks the performance of a company's goal and delivers analytic recommendations for future strategies.
- Tactical dashboards are often the most analytical dashboards. They are great for monitoring the processes that support the organization's strategic initiatives.

Tactical Dashboard

- Tactical dashboards help guide users through the decision process.
- They capitalize on the interactive nature of dashboards by providing users the ability to explore the data.
- The detail level of a tactical dashboard falls between the strategic and operational dashboards.
- A tactical sales dashboard can track your sales target (actual revenue vs. forecasted revenue).

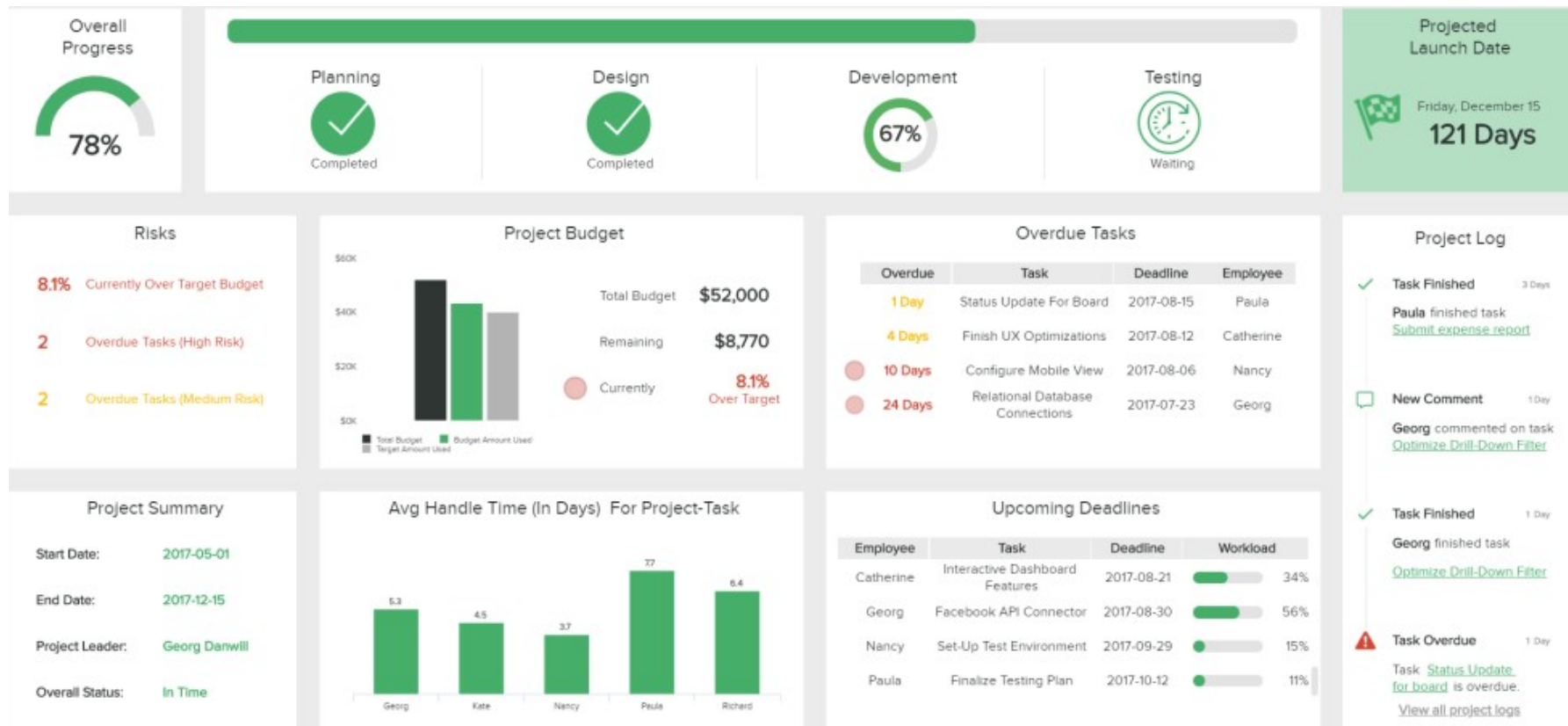
Tactical Dashboard Types

- IT project management dashboard
- Social media dashboard
- Supply chain management tactical dashboard

IT Project Management

- The example below shows a detailed overview of a project with specific timelines and efficiency of the parties involved.
- You can define specific risks, see the overall progress, and average times of conducting specific tasks.
- After the project is finished, you can create a comprehensive IT report, evaluate the results, and make future projects more successful.

IT Project Management



IT Project Management

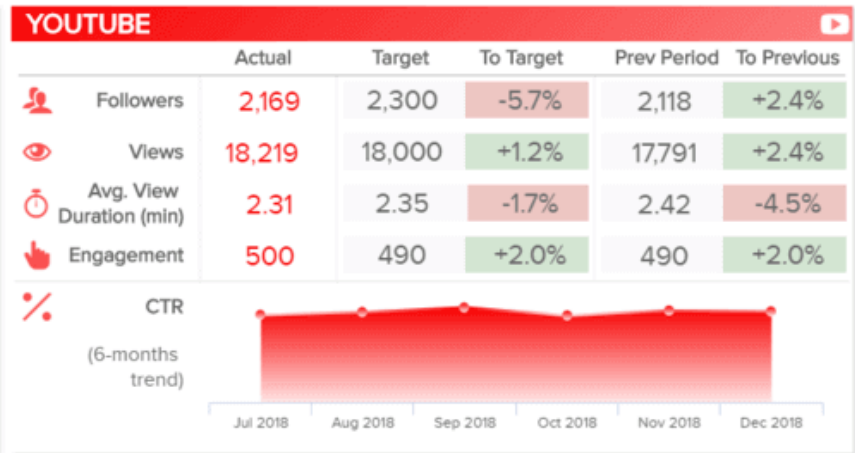
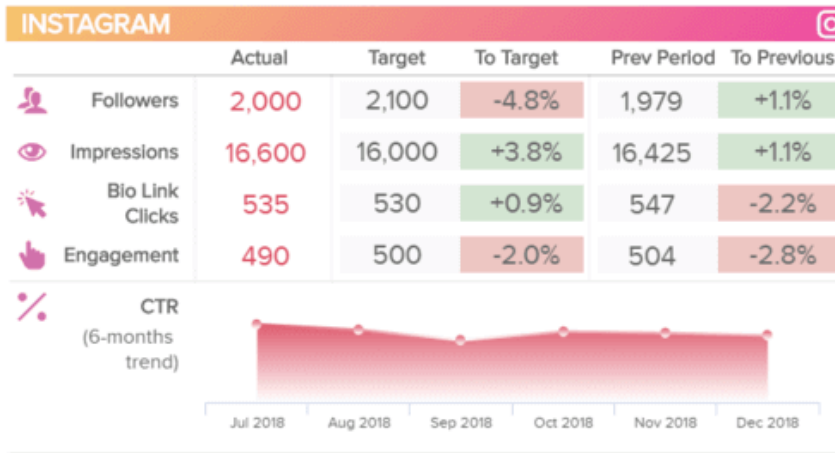
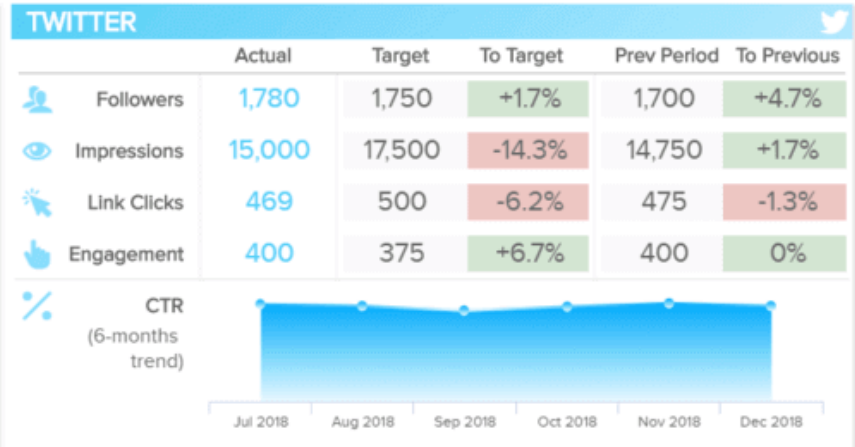
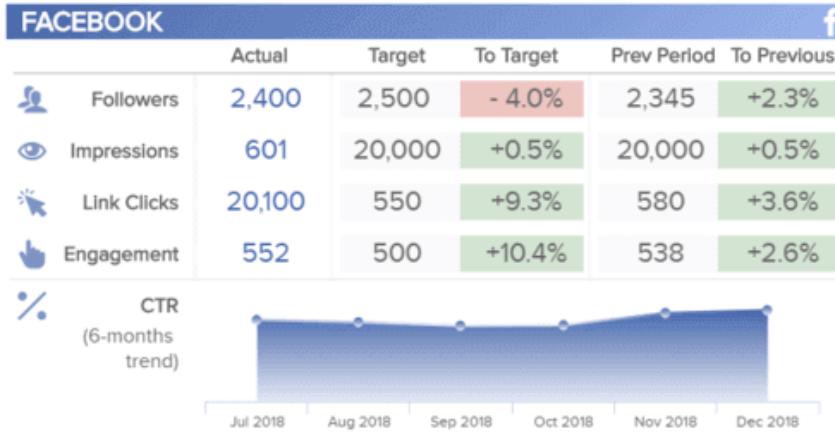
- The goal in every IT management is to increase efficiency, reduce the number of tickets, and deliver a successful project.
- By having the right tool in the form of an IT operations dashboard, a single screen can provide a project manager with all the data he/she needs to analyze all the important aspects of the project.
- While there are various types of project dashboards, this particular visual above is set to monitor project management efforts and alarm leaders if there are any anomalies within the process.

Social Media Dashboard

- Since there are different types of business intelligence dashboards that cover various purposes and we have expounded on LinkedIn as a separate channel that needs to be monitored daily to keep companies in touch with their follower base and expand their reach, but now, in a tactical sense, a KPI scorecard can provide multiple benefits for managing social accounts and, consequently, ensure users have enough data to generate recommendations for future.
- To put this into perspective, we will show a business process dashboard focused on 4 main social media channels: Facebook, Twitter, Instagram, and YouTube.

Social Media Dashboard

TIME PERIOD: DECEMBER 2018



Social Media Dashboard

- The dashboard starts with Facebook as the biggest social media network in the world with, currently, more than 2.5 billion monthly users.
- In our example, we can see that the number of followers did not reach the set target but it did increase in comparison to the previous period.
- In this case, social media managers can dig deeper to understand why and if this Facebook KPI needs particular attention.

SCM Dashboard

- When you create a tactical dashboard strategy, it is important to focus on the analytical and monitoring part of the process that gives a backbone for effective, data-driven decisions.
- Our next dashboard concentrates on the supply chain of a logistics company.

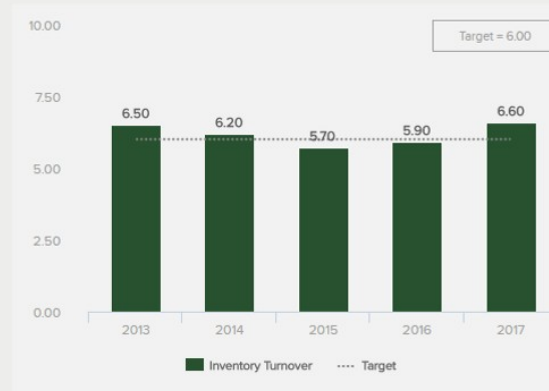
SCM Dashboard

Supply Chain Management

Inventory To Sales - This Year



Inventory Turnover - Last 5 Years



Carrying Cost Of Inventory



Inventory Accuracy

Congrats!
You hit the
target of
91.4%.

92.4%

% Out Of Stock Items

0.94%

This Year



SCM Dashboard

- The supply chain metrics depicted in our example above shows us how data-driven supply chain should be monitored to ensure a healthy process of the company.
- Additional focus on the inventory management will enable the company to have a clear overview of the logistics KPIs needed to stay competitive and avoid out of stock merchandise.
- By fully utilizing logistics analytics, you stand to reap great rewards in your logistics business, and, ultimately, manage to retain customers.

Benefits of A Successful Dashboard

- A successful dashboard implementation will:
 - Save time across an organization: IT, analysts, managers, C-suite, etc.
 - Save companies money by highlighting unnecessary operational costs
 - Provide insight into customer behavior
 - Effectively align strategy with tactics
 - Ensure a goal-driven and performance-based data culture
 - Encourages interactivity and analysis

Summary

TYPE OF DASHBOARD	LEVEL OF SENIORITY	TIME APPLICATION	LEVEL OF COMPLEXITY
STRATEGIC	Senior Management	Long-term	Complex
TACTICAL & ANALYTICAL	Middle Management	Medium-term	Less Complex
OPERATIONAL	Junior Management	Routine	Simple

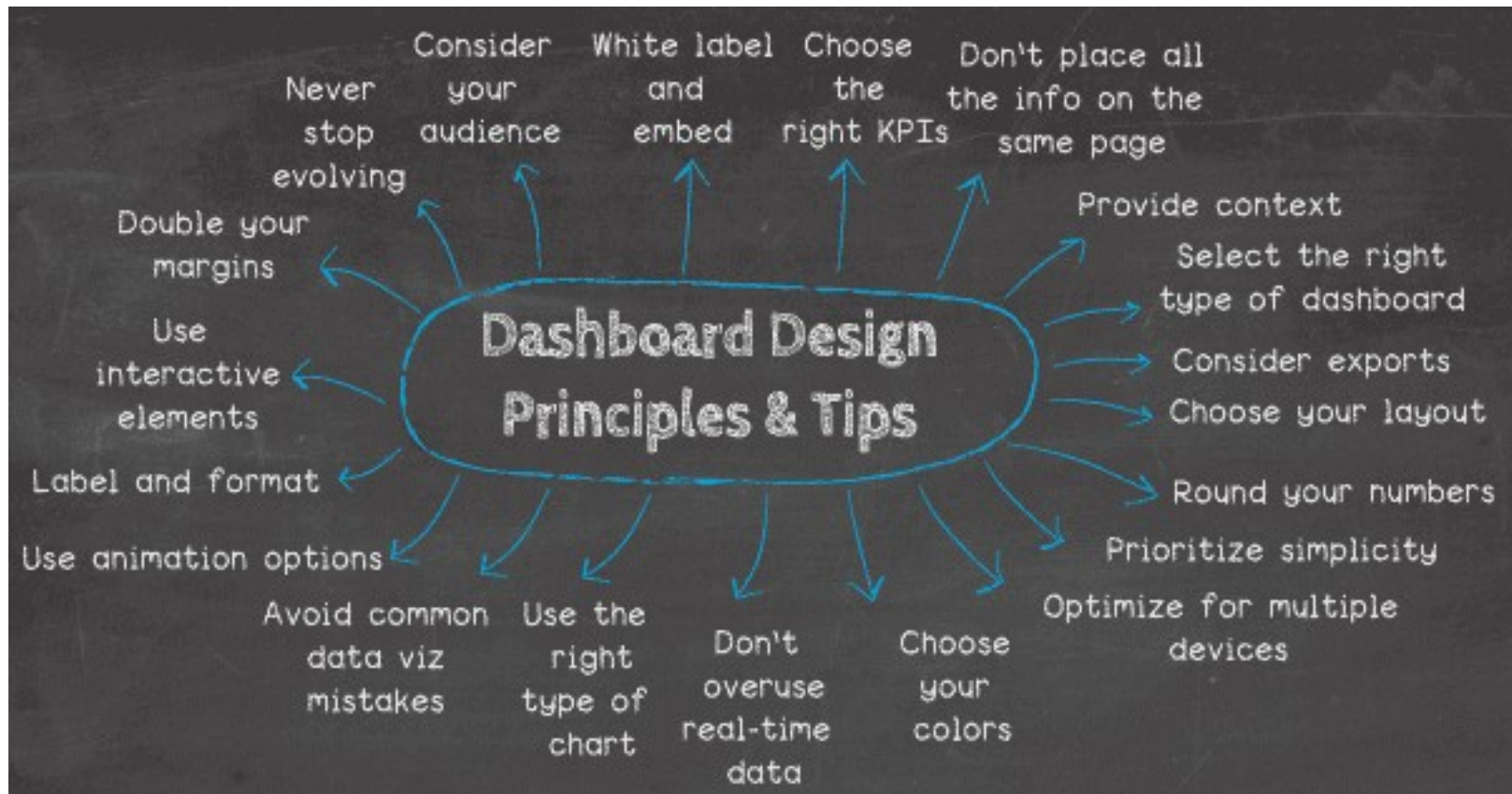
Evolution of Dashboard

- The idea of digital dashboards followed the study of decision support systems in the 1970s.
- Early predecessors of the modern business dashboard were first developed in the 1980s in the form of Executive Information Systems (EISs).
- Due to problems primarily with data refreshing and handling, it was soon realized that the approach wasn't practical as information was often incomplete, unreliable, and spread across too many disparate sources.

Evolution of Dashboard

- EISs hibernated until the 1990s when the information age quickened pace and data warehousing, and online analytical processing (OLAP) allowed dashboards to function adequately.
- Despite the availability of enabling technologies, the dashboard use didn't become popular until later in that decade, with the rise of key performance indicators (KPIs), and the introduction of Robert S. Kaplan and David P. Norton's Balanced Scorecard.
- In the late 1990s, Microsoft promoted a concept known as the Digital Nervous System and "digital dashboards" were described as being one leg of that concept.
- Today, the use of dashboards forms an important part of Business Performance Management (BPM).

Dashboard Design Principles



Consider your audience

- Concerning dashboard best practices in design, your audience is one of the most important principles you have to take into account. You need to know who's going to use the dashboard.
- To do so successfully, you need to put yourself in your audience's shoes. The context and device on which users will regularly access their dashboards will have direct consequences on the style in which the information is displayed.
- Will the dashboard be viewed on-the-go, in silence at the office desk or will it be displayed as a presentation in front of a large audience?

Don't place all information

- The next in our rundown of dashboard design tips is a question of information. This most golden of dashboard design principles refers to both precision and the right audience targeting.
- That said, you should never create one-size-fits-all dashboards and don't cram all the information into the same page.
- Think about your audience as a group of individuals who have different needs – sales manager doesn't need to see the same data as a marketing specialist, HR department, or professionals in logistics analytics.

Choose Relative KPIs

- For a truly effective KPI dashboard design, selecting the right key performance indicators (KPIs) for your business needs is a must.
- Your KPIs will help to shape the direction of your dashboards as these metrics will display visual representations of relevant insights based on specific areas of the business.
- Once you've determined your ultimate goals and considered your target audience, you will be able to select the best KPIs to feature in your dashboard.

Select right type

- Remember to build responsive dashboards that will fit all types of screens, whether it's a smartphone, a PC, or a tablet
- If your dashboard will be displayed as a presentation or printed, make sure it's possible to contain all key information within one page.

Select right type

- Strategic: A dashboard focused on monitoring long-term company strategies by analyzing and benchmarking a wide range of critical trend-based information.
- Operational: A business intelligence tool that exists to monitor, measure, and manage processes or operations with a shorter or more immediate time scale.
- Analytical: These particular dashboards contain large streams of comprehensive data that allow analysts to drill down and extract insights to help the company to progress at an executive level.
- Tactical: These information-rich dashboards are best suited to mid-management and help in formulating growth strategies based on trends, strengths, and weaknesses across departments,

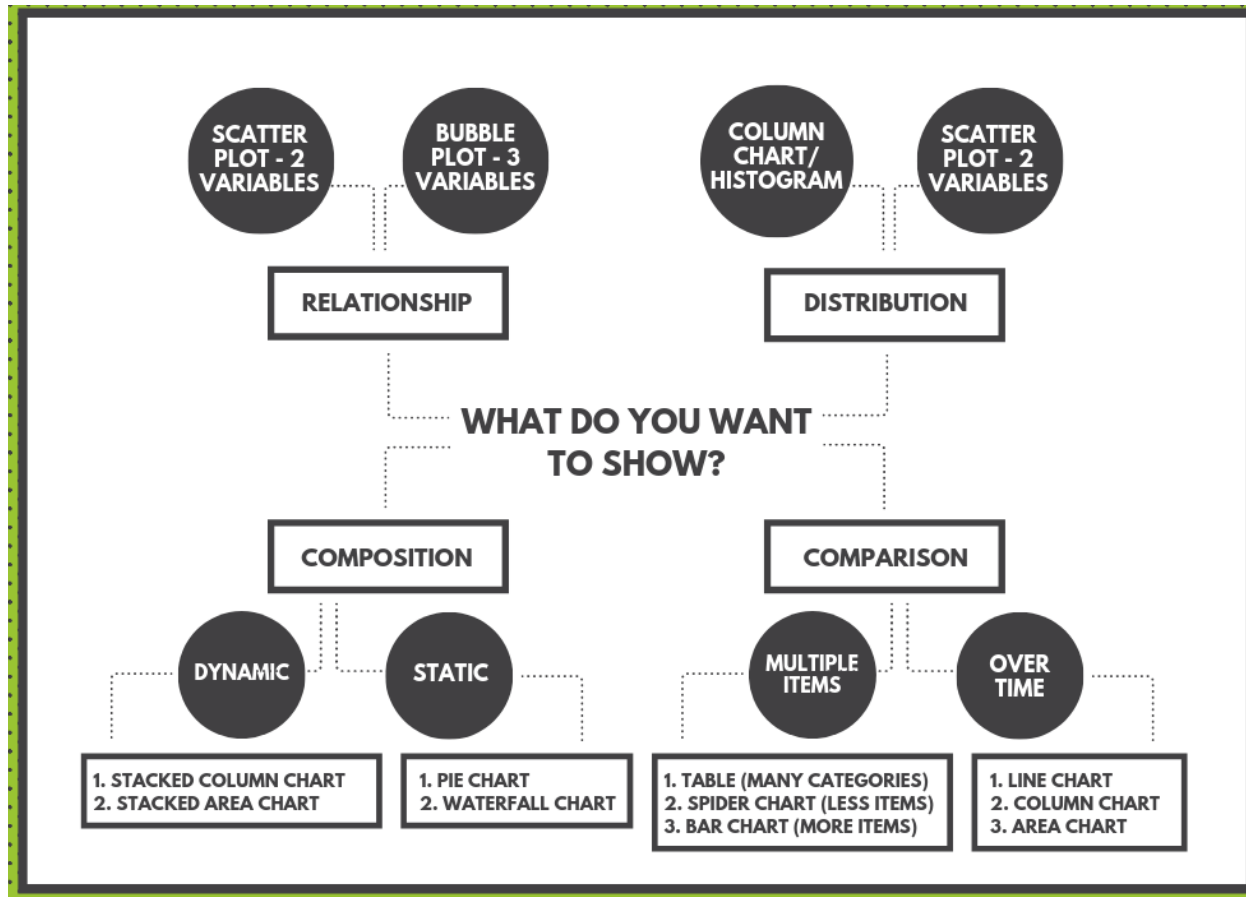
Provide context

- Without providing context, how will you know whether those numbers are good or bad, or if they are typical or unusual?
- Without comparison values, numbers on a dashboard are meaningless for the users. And more importantly, they won't know whether any action is required.
- For example, a management dashboard design will focus on high-level metrics that are easy to compare and, subsequently, offer a visual story.
- Always try to provide maximum information, even if some of them seem obvious to you, your audience might find them perplexing.

Choose right chart

- We can't stress enough the importance of choosing the right data visualization types. You can destroy all of your efforts with a missing or incorrect chart type.
- It's important to understand what type of information you want to convey and choose a data visualization that is suited to the task.
- Line charts are great when it comes to displaying patterns of change across a continuum.
- Bar chart, scatter plot, histogram etc.

Choose right chart



Choose Careful layout

- Dashboard best practices in design concern more than just good metrics and well-thought-out charts.
- The next step is the placement of charts on a dashboard. If your dashboard is visually organized, users will easily find the information they need.
- Poor layout forces users to think more before they grasp the point, and nobody likes to look for data in a jungle of charts and numbers.

Prioritize Simplicity

- One of the best practices for dashboard design focuses on simplicity.
- Nowadays, we can play with a lot of options in the chart creation and it's tempting to use them all at once. However, try to use those frills sparingly.
- Frames, backgrounds, effects, gridlines... Yes, these options might be useful sometimes, but only when there is a reason for applying them.
- Moreover, be careful with your labels or legend and pay attention to the font, size, and color.

Round your numbers

- Continuing on simplicity, rounding the numbers on your dashboard design should be also one of the priorities since you don't want your audience to be flooded with numerous decimal places.
- Yes, you want to present details but, sometimes, too many details give the wrong impression.
- If you want to present your conversion rate with 5 more decimal places, it would make sense to round the number and avoid too many number-specific factors.
- The latter may exaggerate minor elements, in this case, cents, which, for an effective data story, isn't really necessary in your dashboard design process.

Be careful about colors

- Without a shadow of a doubt, this is one of the most important of all dashboard design best practices.
- This particular point may seem incongruous to what we have said up to this point, but there are options to personalize and customize your creations to your preferences.
- The interactive nature of data dashboards means that you can let go of PowerPoint-style presentations from the 90s.
- The modern dashboard is minimalist and clean. Flat design is really trendy nowadays.

Be careful about colors

- Our final suggestion concerning colors is to be mindful when using “traffic light” colors. For most people, red means “stop” or “bad” and green represents “good” or “go.”
- This distinction can prove very useful when designing dashboards – but only when you use these colors accordingly.

Don't go over with real time data

- Next on our list of good dashboard design tips refers to insight: don't overuse real-time data. In some cases, information displayed in too much detail only serves to lead to distraction.
- Unless you're tracking some live results, most dashboards don't need to be updated continually. Real-time data serves to paint a picture of a general situation or a trend.
- Most project management dashboards must only be updated periodically – on a weekly, daily, or hourly basis. After all, it is the right data that counts the most.

Consistent Labeling and formatting

- Above all else, in terms of functionality, the main aim of a data dashboard is gaining the ability to extract important insights at a swift glance.
- It's critical to make sure that your labeling and formatting is consistent across KPIs, tools, and metrics.
- If your formatting or labeling for related metrics or KPIs is wildly different, it will cause confusion, slow down your data analysis activities, and increase your chances of making mistakes.
- Being 100% consistent across the board is paramount to designing dashboards that work.

Use interactive elements

- Any comprehensive dashboard worth its salt will allow you to dig deep into certain trends, metrics, or insights with ease.
- When considering what makes a good dashboard, factoring drill-downs, click-to-filter, and time interval widgets into your design is vital.
- Drill-down is a smart interactive feature that allows the user to drill down into more comprehensive dashboard information related to a particular element, variable, or key performance indicator without overcrowding the overall design.

Use animation options

- Animation options can be one of the dashboard elements that give an additional neat visual impression where you select the appearance of the specific element on the dashboard and assign an animation option.
- The result is a simple, yet effective automated movement based on the desired speed (slow, medium, or fast, e.g.) and types such as linear, swing, ease-in, or ease-out.

Double up your margins

- One of the most subtle yet essential dashboard guidelines, this principle boils down to balance.
- White space – also referred to as negative space – is the area of blankness between elements featured on a dashboard design.
- Users aren't typically aware of the pivotal role that space plays in visual composition, but designers pay a great deal of attention to it because when metrics, stats, and insights are unbalanced, they are difficult to digest.

Optimize for multiple devices

- Optimization for mobile or tablet is another critical point in the dashboard development process.
- By offering remote access to your most important insights, you can answer critical business questions on-the-go, without the need for a special office meeting.
- Benefits such as swift decision-making and instant access ensure everyone has the possibility to look at the data on-the-fly.
- Here it makes sense to keep in mind that the dashboard layout it's not the same as in desktop. A mobile dashboard has a smaller screen and, therefore, the placement of the elements will differ.

Export vs. Digital

- In the process of dashboard designing, you also need to think about exports.
- You can use the dashboard itself and share it, but if you plan on regularly use exports, you might want to consider optimizing towards printing bounds, fewer colors, and different types of line styles to make sure everything is readable even on a black-and-white printout.
- Hence, when you plan your data dashboard design, you also need to look into the future uses and how to optimize towards different exporting options or simply sharing the dashboard itself with all its features and options.

White label and embedding

- Another critical point when considering your workflow dashboard design is the opportunity to white label and embed the dashboard into your own application or intranet, e.g. With these options in mind, you can consider using your own company's logos, color styles, and overall brand requirements and completely adjust the dashboard as it's your own product.
- Embedded business intelligence ensures that access to the analytical processes and data manipulation is completely done within their existing systems and applications.

Avoid common visualization mistakes

- Data visualization has evolved from simple static presentations to modern interactive software that takes the visual perception onto the next level.
- It also enabled average business users and advanced analysts to create stunning visuals that tell a clear data-story to any potential audience profile, from beginners in a field to seasoned analysts and strategists.

Avoid common visualization mistakes

- Failed calculations: The numbers should add up to 100. For example, if you conduct a survey and people have the option to choose more than one answer, you will probably need some other form of visuals than a pie chart since the numbers won't add up, and the viewers might get confused.
- The wrong choice of visualizations: We have mentioned how important it is to choose the right type of chart and dashboard, so if you want to present a relationship between the data, a scatter plot might be the best solution.
- Too much data: Another point you need to keep in mind, and we have discussed in detail, don't put too much data on a single chart because the viewer will not recognize the point.

Never Stop Evolving

- Last but certainly not least in our collection of principles of effective dashboards – the ability to tweak and evolve your designs in response to the changes around you will ensure ongoing analytical success.
- When designing dashboards, asking for feedback is essential. By requesting regular input from your team and asking the right questions, you'll be able to improve the layout, functionality, look, feel, and balance of KPIs to ensure optimum value at all times.

Summary

- By only using the best and most balanced dashboard design principles, you'll ensure that everyone within your organization can identify key information with ease, which will accelerate the growth, development, and evolution of your business.
- That means a bigger audience, a greater reach, and more profits – the key ingredients of a successful business.

Display media for Dashboard

- Two fundamental principles have guided the selection of each display medium in this proposed library:
 - It must be the best means to display a particular type of information that is commonly found on dashboards.
 - It must be able to serve its purpose even when sized to fit into a small space.
- The library is divided into six categories:
 - Graphs
 - Images
 - Icons
 - Drawing objects
 - Text
 - Organizers

Graphs

- Most dashboard display media fall into the graph category. Given the predominance of quantitative data on most dashboards, this isn't surprising.
- All but one of the items (treemaps) in this category display quantitative data in the form of a 2-D graph with X and Y axes.
- Most of these are familiar business graphs, but one or two will probably be new to you, because they were designed or adapted specifically for use in dashboards.

Graphs

- Bullet graphs
- Bar graphs (horizontal and vertical)
- Stacked bar graphs (horizontal and vertical)
- Combination bar and line graphs
- Line graphs
- Sparklines
- Box plots
- Scatter plots
- Treemaps

Icon

- Icons are simple images that communicate a clear and simple meaning. Only a few are needed on a dashboard.
- The most useful icons are typically those that communicate the following three meanings:
 - Alert
 - Up/down
 - On/off

Text

- All dashboards, no matter how graphically oriented, include some information that is encoded as text. This is both necessary and desirable, for some information is better communicated textually rather than graphically.
- Text is used for the categorical labels that identify what items are on graphs, but it is often appropriate in other places as well.
- Any time it is appropriate to report a single measure alone, without comparing it to anything, text communicates the number more directly and efficiently than a graph
- Note that in these instances some means to display the text on a dashboard, such as a simple text box, is necessary.

Images

- The means to display images such as photos, illustrations, or diagrams is sometimes useful on a dashboard, but rarely, in my experience.
- A dashboard that is used by a trainer might include photographs of the people scheduled to attend the day's class, one used by a maintenance worker might highlight the areas of the building where light bulbs need to be replaced, or one used by a police department might use a map to show where crimes have occurred in the last 24 hours.
- However, images will be unnecessary for most typical business uses.

Objects

- It is sometimes useful to arrange and connect pieces of information in relation to one another in ways that simple drawing objects handle with clarity and ease.
- For instance, when displaying information about a process, it can be helpful to arrange separate events in the process sequentially and to indicate the path along which the process flows, especially when branching along multiple paths is possible.
- Another example is when you need to show connections between entities, perhaps including a hierarchical relationship, such as in an organization chart.

Organizer

- It is often the case that sets of information need to be arranged in a particular manner to communicate clearly.
- Three separate ways of organizing and arranging related information stand out as particularly useful when displaying business information on dashboards:
 - Tables
 - Spatial maps
 - Small multiples

Thank you

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