Good practices for developing user experience in Qlik Sense

Creating compelling analytics applications for business users

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Getting a return on your data investment

Qlik Sense is all about extending the reach of Visual Analytics to more people in the business. People make decisions and the more people that use Visual Analytics the more value an organization will get from their data investment.

Many organizations invest a lot of time and money in acquiring and gathering data. Whether that be from 3rd party organizations that sell market related data or capturing data in Customer Relationship Management (CRM) systems, Enterprise Resource Planning (ERP) systems or cloud based line of business applications and all the way down to locally created spreadsheets.

This investment can be fully utilized by enabling as many business users as possible to have access to, and gain insight from, all of these data sources. In the past it has often only been a small number of data-savvy individuals that have been able to access and analyze the data.

This paper will not go into the detail of the data extraction, integration and associative modelling process. It will not cover non-functional aspects like performance, which is undoubtedly a key aspect of user experience. Neither will it go into choosing the right chart or use of color in charts, but concentrate more on the simple concepts around how data visualizations can best be presented to your user community. The objective is to make information and insight easily consumable, engaging and enjoyable. This will undoubtedly help drive user adoption and therefore the return on investment for data.

Why is user experience important?

Engaging users is critical to maximizing value from visual analytics and data. User experience is key to this for the following reasons:

- **A good user experience will help drive adoption**

  The more people that are using it then the more value an organization can get from its data investment

- **Users can find the insight they need more quickly**

  This makes for greater productivity and better decisions

- **People will enjoy using it**

  And if they enjoy the experience they are more likely to explore and experiment, driving further insight and inspiration!

This paper is intended to be a general guide around good practice using the Qlik Sense standard User Interface to create Visual Analytics applications. You might be a developer publishing to a large community of users or someone doing some self-service visualization, and wanting to engage, influence and impress your peers and/or customers.

For the best results, especially for enterprise wide deployments, it is recommended that your user community be consulted and engaged on a more formal basis with regards to the user experience that would suit them best, not every organization is the same.
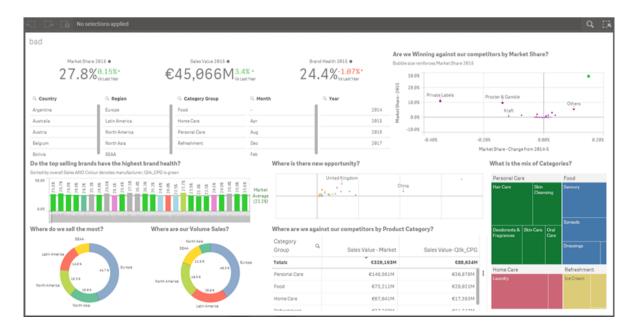
Top Tip 1 – Less is more

Hardened data enthusiasts might be inclined to squeeze as much information as possible on to a sheet and use all of the available real estate, because "the more data the better". This might be true for some of us, but it can be overwhelming and confusing for the uninitiated. It is also likely to be difficult to use on mobile devices. The responsive nature of Qlik Sense and the layout grid naturally promotes less cluttered layouts, which work better on all devices.

The concept of 'less is more' is often borne out in our everyday experience. Think to when you have written an important email or presentation. The first iteration is often wordy and unfocussed as you try and note down all the points you think are relevant. Over a number of days you may refine it, have a colleague proof read it and focus the message and information to the audience. To make something complex appear simple takes time, but it is well worth the investment.

If we want a wider audience to engage with data visualizations we need to keep things simple and easily understood. Here are a few ways to achieve this:

- Encourage the use of Associative Search and the Selections tool, don't clog up dashboards with list boxes or filter panes. Do we use list boxes to search the internet? Search is a much more widely adopted and effective user interface to quickly and easily find information
- Limit the number of visualization objects on a single sheet to no more than 4. This excludes text, Key Performance Indicator (KPI) objects and some gauges, which can be a little denser if required. This means users concentrate on key information and also helps ensure it will be more usable on mobile devices
- Don't try and account for all possible use cases and build lots of sheets and objects. Stick to the 80:20 rule, build 20% of the objects required to meet 80% of the use cases. The remaining 20% of use cases can be met through self-service, a key capability of Qlik Sense
- Really think about the insight you are trying to convey and realize that it may take some time to get the most effective and concise set of visualizations and sheet layouts, keep iterating!

An example of dashboard overload. Where do you start?
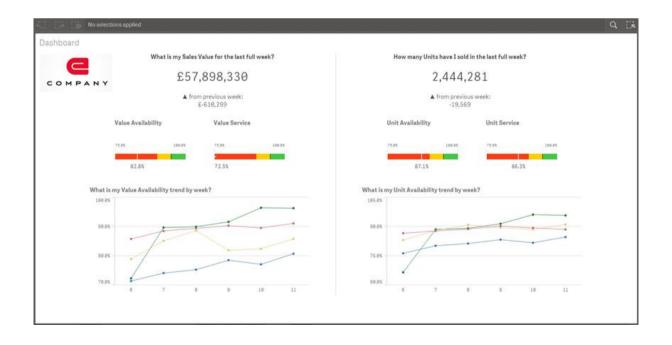
Top Tip 2 – Space and symmetry

Numerous scientific studies have shown that symmetry is attractive to the human eye. It may be superficial, but if the layout of visualisation objects are symmetric and beautiful they will be more appealing and users are more likely to want to engage with the content.

In addition, clogged and busy dashboards do not look nice and will be hard to use on mobile devices. It can be difficult to let go and not feel compelled to consume every bit of real estate, but silence can be as powerful and pleasant as noise and the same applies to data visualisation.

Here are a couple of simple methods to create sheets within your applications that are even more beautiful:

- Try to leave one square of grid space between objects and to the edge of the screen, this avoids user claustrophobia and delineates objects nicely
- Arrange objects symmetrically, remember, symmetry is appealing to the eye
- Group objects together that have a strong relationship or shared relevance

A dashboard focusing on two measures (value and volume sales) and utilizing symmetry

Top Tip 3 – Don't be afraid of logos, icons and images

There is a school of thought that would say using screen real estate for image objects is wasteful. If that were the case, why would they be used on websites, in advertising space and on products?

The reason is that they help with visual appeal, brand identity and a sense of place, among other things. Here are a few considerations and ideas as to how to best use graphics within your applications:

- Use corporate logos or specific project logos to help reinforce a sense of identity and trust in the application
- Icons can be very effective at reinforcing recurring themes or domains within the data and should be used consistently across sheets
- Always give your application a distinctive and appealing thumbnail in the application hub, first impressions count and this is like your front door
- When using graphics in a Text & image object, remember to set the image as a background, set the correct alignment, choose 'Always fit' or another setting that avoids image distortion and set 'Responsive behavior' to 'Images'
- Be sure to add logos and icons to the 'Master items' library. This will speed up development, ensure consistent configuration and will help if you need to change any of the standard images as it can be done quickly and easily in a single place
- Try to cluster logos and filter boxes together on one side of the screen, similar to a web site side navigation bar, this saves space and creates a logical grouping
- Make sure your graphics are well suited to their use. Get the balance right between a small file size (good for performance) and quality. Transparent .PNG images tend to work well as a file format
- Companies tend to put a lot of effort into the design aesthetic of public facing material. This is a great source of design ideas and graphics. Make sure to check out assets such as annual reports, corporate presentation templates and company websites for some great material
- Don't use excessive numbers of graphic objects, they should be an accompanying feature to the analytics objects, not the main event (landing pages can be the exception). Also, in small device mode (i.e. the Qlik Sense user interface for small screen devices like smartphones) you don't want users scrolling through too many graphic objects, even if Qlik Sense minimizes them in an intelligent way
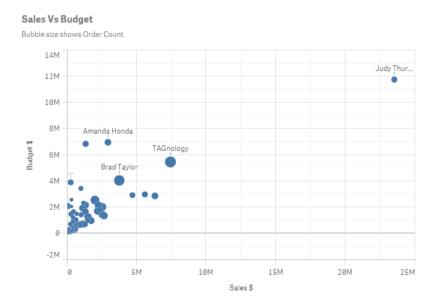
Top Tip 4 – Think of your audience

This is like one of those basic presentation skills tips. It might sound obvious, but what does it mean in the context of user experience for visual analytics? First and foremost it is about thinking "What questions do my business users login to answer?"

Secondly, it is important to consider the order of questions a user might have. What is their first question, what are the typical questions that follow this? How do the users like to work? Of course the beauty of the Qlik Associative Model is the ability to freely explore, but we should try and order visualizations and sheets in line with the most common user journey.

Thirdly, you need to ensure your visualizations provide insight in the most consumable and simple way possible. Scatter plots are often used to show relationships between two measures, for example between Sales and Sales Target (or Budget). However, you might not want to just show Sales Vs Target for each Sales Person, the real business question is "Are my Sales People on Target?" We are interested in, first if they are above or below target and secondly by how much. But, even the how much is relative and should not be an absolute value, rather a percentage. Imagine I have a 10,000 target and I am 1,000 off target, this is very different to if I have a 100,000 target and am 1,000 off target, 10% Vs 1% off target respectively. If we don't show a percentage then this appears to be the same degree off target, which could be misleading.

See the two images below as a before and after example of the above points. Hopefully you can see in the 'After' example the title immediately helps identify the purpose of the visualization in a language that should be more meaningful to a business user. Secondly, you can easily see the number of Sales People above and below target, the addition of a reference line should help users quickly identify this.
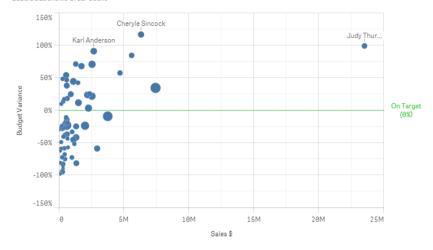
Before

Sales Vs Budget
Bubble size shows Order Count

After

How are my Sales People performing against Budget?
Bubble size shows Order Count

Finally, what is the likely take-away or actionable bit of insight at the end of the user's journey and analysis path? Is this made easy and intuitive to find?

Here are a few points to consider around addressing your user community and their needs:

- Who is your user community and why do they use Visual Analytics? What business questions are they looking to answer?
- Does your visualization make it easy for users to answer the questions they have and make a business decision?
- What is the language of your user community? Try to use the same language in the title of your visualization objects and/or sheets, as well as the Master items (also use the description field and tags for this purpose)
- KPI objects should always have context where possible, add an additional measure to achieve this (e.g. compared to the same period last year)
- Spend time thinking about the measures you are using and whether the calculations really help reveal the trends that you intend, as per the above example
- Think about the user journey and order the sheets in a way that makes navigation as simple as possible. The classic approach is to start with a Dashboard page that lets users see high level KPIs and slice and dice them in a way relevant to them. They then identify an area of focus, around product or margin for example, and can click through to a set of sheets and visualizations that help them understand what is driving good performance or bad performance. These are the Analysis sheets. Once the user has narrowed their search to a very specific area, we can have a Record sheet, which might just be a table with the record details. This is known as the Dashboard-Analysis-Record (DAR) approach and is a great starting point when thinking about the user journey.

Top Tip 5 – Carefully consider the use of extension objects and more exotic visualizations

There are some great extension objects out there on <u>Qlik Branch</u> or in the general open source community, like the <u>D3 visualization library</u>. Qlik Sense's standard and open Web APIs enable customers and web developers to extend the product to meet special use cases.

There are typically two main reasons to use extensions objects within the Qlik Sense User Interface:

1. Extend functionality
2. Excite and engage users with new and different visualizations

The first reason is often where users (or a senior stakeholder) express a very strong opinion that things must be just so, e.g. "a button that does this" or "a drop down graphic that does that" and extensions provide the solution. The key considerations when choosing to use an extension for this reason are around user experience as well as support and maintenance. Qlik Sense has been designed to provide a robust, reliable, consistent and responsive user interface. Every piece of functionality is carefully considered in the context of the whole. Not all extension objects may have been designed so carefully or with a consistent philosophy. For example they might not be fully responsive so when they are viewed on tablets or smart phones labels may not show correctly or they do not respond appropriately to resizing. They may also not work in the same way as out of the box objects in terms of the self-service scenario and the user interface. It is certainly worth considering things on balance and making the argument to work with the standard functionality where possible. From a support and maintenance perspective it is also worth considering that although the Web APIs are supported by Qlik, the extension objects are not and so would require support from a local web technologies team.

The second reason is around exciting and engaging users with data visualization and is a little more nuanced. There are very few visualization objects apart from a bar chart, line chart, scatter plot and Qlik Sense's lovely Tree map (for hierarchical data) that convey data in an effective manner. Gauges and pie charts sometimes have a place and KPI objects and tables are not really data visualizations.

If the out of the box charts cover most requirements in the most simple and effective way then why use more exotic visualizations? This is where we enter the debate of form versus function. Form tends to be equated to <u>David Mcandless</u> style visualization, whereas function is championed by people such as <u>Edward Tufte</u>. From a business perspective function should normally win out over form.

However, as stated at the beginning, people make decisions and the more people that use Visual Analytics the more value an organization will get from their data investment. If exotic and funky visualizations get the user community excited and engaged then maybe function can take a back seat. Developing an infographic using images relevant to your company that fill or empty might be fun and engaging and therefore justifiable. Word clouds are another type of visualization object that some people find attractive, but at the same time are poor at conveying values or making comparisons.

The general advice here is to only use extensions where their purpose is clear and justified and the required support skills are in place. Out of the box functionality should always get the benefit of the doubt, as with any software product.

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