**OneView / BitGenie case study**

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| **Goals**  Making big data accessible for the end user both upstream and down stream in oilfield services. This case study is about a multi teared application approach to an enormous amount of data that had to be accessible to a multitude of different user personas. |

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| **Client/Company/Project**  Baker Hughes Inc  OneView / BitGenie | **Project date**  02/2012 – 06/2016 |

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| **My role**  I was responsible for the entire design pipeline from discovery meetings with stakeholders all the way through delivering the final product to the end users. I acted as the Lead User Experience Designer, and overall project lead on creative and design. This included managing the outsourced vendors and internal design teams. As the Lead UX Designer I also planned the requirements gathering for strategy, wireframing, and content management. Also collaborated with our design and development teams to brainstorm ideas and problem solve. I also worked on this project as a lead designer and product manager. Main areas of responsibility:  - Management (sprint planning and weekly reviews)  - UX analysis (flows and persona)  - Design (app, and branding)  - Lo-fi prototyping (basic flow and interactions) |

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| **Project Summary/About this Project**  I was brought in by Baker Hughes specifically to handle the OneView project. This project was a huge undertaking because it was aggregating all the downhole data from their multimillion-dollar Cadence System which included Seismic, Magnetic, Geothermic, LWD, and Geologic data sets just to name a few into one piece of software for the downhole drillers to use to best be able to not only locate petroleum reservoirs, but optimally be able to drill into them for the best recovery of said petroleum.  That was just the surface level of the purpose applications. The data we were dealing with was also for the full life cycle of any well. This was everything from well and casing integrity, propent pumping and petroleum recovery, and formation evaluation for proper drill bit selection. |

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| **The challenge**  The intended scope of this project was just one of the many challenges we faced. Aggregating the amounts of data into a singular application that were coming from multiple back-end data farms was just a small piece of the puzzle. Most of these data sets were legacy systems written in outdated programming languages, and some were not even on shared networks.  Another challenge was the amount of different user personas and market segments the intended software had to cater to. This software was intended to not only assist the downhole drillers with drilling accuracy and avoid NPT (Non-Productive Time) on a drill site, but also assist with companies to monitor every aspect of a wells life cycle. This included Geoscientists, Petroleum Engineers, Mom and Pop Rig Operators, and Sales to be better equipped to sell tools and services to our major clients.  Each one of these personas carried with them a custom set of wants and needs they expected out of the software I had to design with the expectation of solving pain points that have existed in oilfield services since the beginning. |

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| **Solution (As long as needed)**  My solution was a suite of applications designed to share a back-end dataset so that the personas were all accessing the most up to date data possible while only being able to access applicable data for their persona.  This mean separating out some personas while grouping others together for the types of data they could access, but the first problem we had to solve was how to get all the data into a central database from all the systems both modern and legacy. This was handled by a team of data scientists that worked for several years to accomplish this goal. My team was kept up to date on progress and what data was available at any given time.  Once we had the different personas separated into their groups and the information architecture was in place, I began wireframing out the user stories considering the wants and needs of each group. I would go through several iterations of wireframing the application. This included rounds of meetings with stakeholders and focus groups of end users for feedback until a wireframe layout was chosen for the largest piece of the proposed software. I then began the design phase for the look and feel, and designed the style guide that would be followed for all the applications in this family. Then we began work on our proof of concept break down of the entire system and MVP (Minimum Viable Product) to get signoff from the stakeholders, board of directors, and CEO.  Diagram  Description automatically generated Image: Persona UI mockup.  image: overall operator UI mockup.  image: Flow and casing integrity mockup.  image: Casing evaluation mockup.  image: overall UI mockup OneView  At this point after finishing the style guide and wireframes I was charged with finding a vendor to build the MVP. Once one was selected, I began the design meetings with their creative and design teams while always acting as the Lead UX designer on the team. After taking them through the designs and wireframes we began to break down the look and feel of the application and the MVP. This process and the application went through several more iterations before a final look and feel were selected. This process was a combination of A B testing, Focus Groups, and Tobi eye tracking and behavioral studies in our usability lab that I oversaw. Once the proof of concept was completed and we presented our work to the board they were ecstatic with the work we had done, however the decision was made to focus on one small section of the overall application as the first in a series of smaller applications. This decision was made due to the difficulty the data scientists were having getting all the required data sets all into a singular system that would be manageable. This is where we pivoted from the overall OneView project to the much smaller BitGenie project that was determined to be the companies best bet to see an ROI in a timely manner.  BitGenie is a smart drill bit selection tool for rig operators and downhole drillers to help them best pick the correct drill bit for their applications. It is also a sales tool for Baker Hughes’ sales team to effectively be able to upsell newer drill bits, and or move older drill bits out of inventory that have been lost in the shuffle. A bonus feature we found with the BitGenie application was it completely overhauled the logistics of the drill bits so salespeople knew where the bits were, how many there were, and could accurately calculate price and shipping. This saved them an incredible amount of time and saved the company money.  image: page from BitGenie wireframe behavior select.  image: page from BitGenie wireframe search results.  This was where I started the process all over again with the design and wireframing of BitGenie. This time with a clearer vision and much smaller scope. We then selected a vendor for the actual build of the application (Bottle Rocket). With their help and expertise we were able to break down the wireframes I had made and actually revise some aspects of the overall flow to make BitGenie the only one of its kind application when it comes to oilfield services. There are several features to BitGenie that makes it stand out that are now patented. (There were at last count five patents pending for data visualization between the OneView and BitGenie applications, and one that had been excepted. Patent number: 9153050)  image: BitGenie parameter widget.  image: BitGenie behavior widget.  The first feature is for formation evaluation. This helped the driller or operator input what types of rock formations they would be drilling through. The second feature is a smart selector that pulled drilling data to determine the best type of drill bit for the user’s application. The third feature is a stackable widget that allows the user to determine what bit behaviors are desirable or more necessary, and prioritize the results according to those set behaviors. The final feature is a compare function that lets the user see all the bits that fall into their set behaviors and compare them against each other to make the most educated decision in their selection that has ever been seen in oilfield services. |

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| **Results**  The result is a one-of-a-kind application in the oilfield services industry that not only helps the end user better pick drill bits that are tailored for their application, but also allowed Baker Hughes to greatly improve their sale of featured and legacy drill bits. It is innovation like this that led to the courting and eventual sale of Baker Hughes to GE.  [BitGenie Long web 8 13](https://www.youtube.com/embed/v9G7LE1yqdQ?feature=oembed) |