

# Innovation Center Interface

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## 1 Overview

The client, the State of North Carolina, currently possesses hardware (in the form of a number of touch-screens, Microsoft PixelSense brand) that is for an "Innovation Center", where staff and citizens can access a variety of data, from budget to transportation, from education to employment statistics. They also have a significant breadth of data going back to 1985 or earlier in an accessible form, although most of it is in distinct reports that are not part of an over-arching common database. However, they lack an interface between these two parts; towards that end they wish us to design and demonstrate with a prototype an interface for at least a few of their existing datasets that precisely and intuitively communicates data relationships to the user.

During our videoconference and in-face meetings, there was a lot of emphasis upon transportation or employment data, so the testing datasets will be from the latter; in particular, county- and state-level salary and employment data, along with the distribution of different industries across the state.

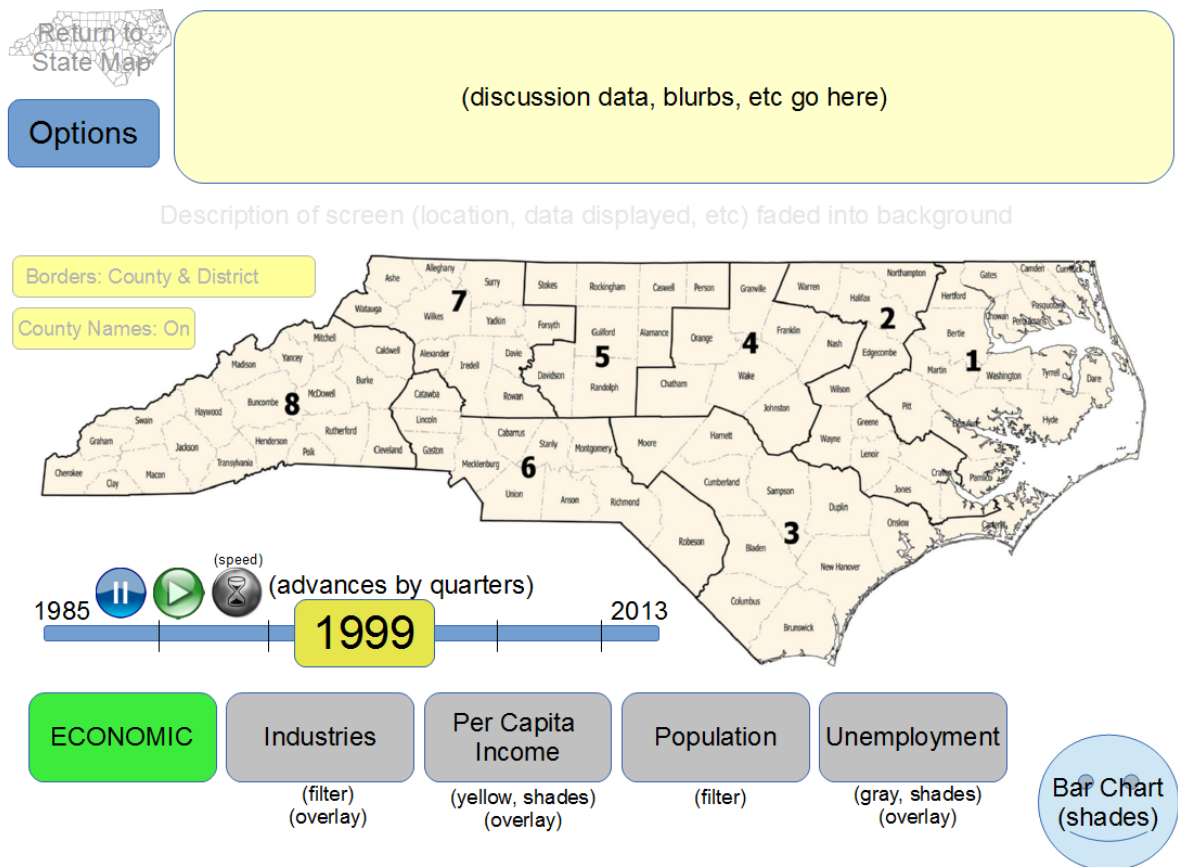
## 2 Evaluation of Existing Interfaces

Currently the data can be accessed through a number of tools such as LINC (Log Into North Carolina) [1], Access NC [2] or DDDDS [3]. The backend database(s) seem to possess near-complete coverage of state-, county- and municipal-level data in the relevant areas, but restricts the amount of data displayed. Moreover, there is no usage of visualizations or other tools to intuitively communicate relationships between different categories, nor is there any sense of scale in the result; the data is only displayed in the form of tables. Overall, it is effective if you are looking for specific numbers tied to any of a wide variety of statistics, but it is not a proper tool for comparative tasks; any such work would need to be done with an external tool.

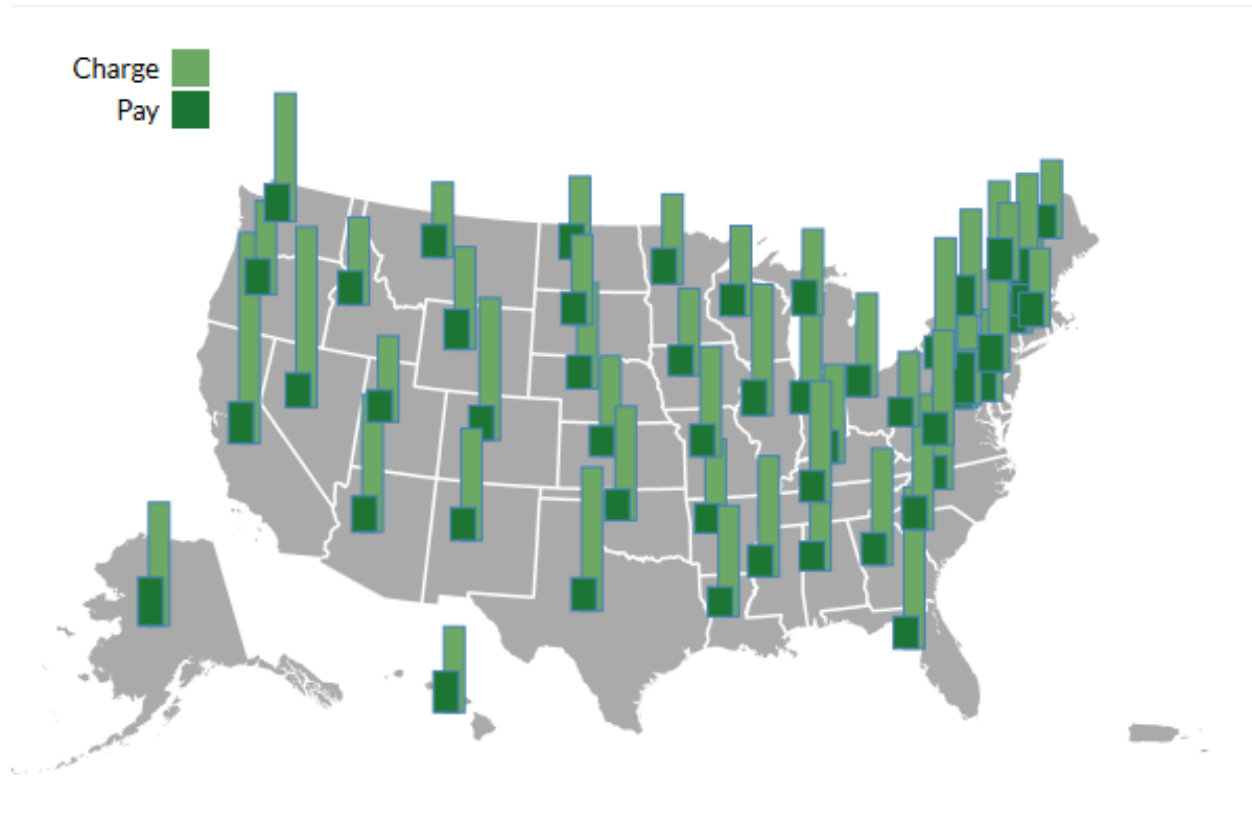
## 3 Design Proposal

We propose to have an interactive dynamic map of the state, with the ability to move down to county- or municipal-level or back up to state-level for scale. The map would also include a temporal component, allowing for animation of relevant data over time. The ability to add an assortment of filters (removing extraneous information) and overlays (adding relevant information) to allow the display of data relationships following the general trends of data visualization is key; if properly modularized, then multiple filters and overlays can be combined to intuitively generate combined statistics that would be useful both for understanding correlative relationships and for making policy decisions. While numeric data may be accessible, the principal learning tools will be location-dependent bar charts and heat maps located by geographic region (ie,

by county, congressional district, or municipality). Additional possibilities include scatter- or line-plots in pop-up screens as well as force-directed graphs. Rather than turn to the somewhat clunky Surface SDK, we will be attempting to create our solution in a browser-based format; while some inherent touch functionality is lost, that functionality is relatively easy to restore with a touch interface to a typical pointing-device interaction. In addition, a more generalized visualization system will allow for remote access of the data without the need for a touch screen, if the clients so choose. Interactions with the interface will be done through simple touch or dragging; there does not seem to be need for multi-touch functionality. While having multiple interfaces that can be selected would be beneficial, they are not necessary for the prototype stage.



*A storyboard sample of a possible main screen*



*An external snapshot of overlaying bargraphs over a map [4]*

## References

- [1] Log Into North Carolina website, <http://linc.state.nc.us/>, accessed November 2013
- [2] AccessNC, <http://accessnc.commerce.state.nc.us/EDIS/page1.html>
- [3] ESC Demand Driven Data Delivery System, <http://esesc23.esc.state.nc.us/d4/>
- [4] <http://vida.io/discussion/s5qo5Gwrct5HNxAD2>