PROCESS BOOK

-THE BIG SNORT-

EXPERIENCE THE SMOOTH, RICH TASTE OF PREMIUM PROFITS!

COM-480
DATA
VISUALIZATION

SPRING 2025
EPFL

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THE STORY BEHIND *THE BIG SNORT*

What if investing in dairy could be thrilling? What if milk wasn't just on your cereal, but in your investment portfolio?

These were the questions that sparked the creation of *The Big Snort*-a bold attempt to transform raw data into an engaging, educational experience. It all began with a simple but provocative idea: could we make the complex dynamics of milk and dairy production not just understandable, but fun?

At the crossroads of data visualization and game design, *The Big Snort* was born. We wanted to push the boundaries of how people engage with information. Traditional bar graphs and static pie charts were not enough. We wanted interaction, decision-making, and consequences. *The target?* The vast, often-overlooked world of U.S. dairy production.

But why dairy? Beyond its economic footprint, dairy holds a deep cultural place in Western diets, especially in countries like Switzerland, where cheese and milk are more than food; they are part of our identity. We believe that, once gamified, the topic will resonate with users on a personal level and open a window into the forces shaping the milk in their morning coffee.

I. BUILDING THE GAME

The Big Snort is founded on a comprehensive dataset from the USDA spanning decades of dairy production, consumption patterns, and economic indicators. This spreadsheet is turned into an engaging adventure that starts in 1970, in the heart of the American dairy market. With a hypothetical $100,000 in their bank account, users of *The Big Snort* have one mission: invest wisely across U.S. states, respond to real historical trends, and ride the waves of milk booms and busts. The game is not just about making money-it is about understanding the agricultural currents that shaped the modern dairy industry.

Technically, we used D3.js and JavaScript to bring our experience to life. We crafted interactive maps, dynamic charts, and a responsive interface, all aimed at turning numbers into narratives. The development process began with a minimal viable product, consisting in a clean, interactive map of the U.S. that served as the launchpad for gameplay. From there, the core mechanics were sketched: how would investment work? How would time progress? What feedback would players get from the system?

As the game took shape, rounds of testing revealed both promise and challenges. We iterated through refining visuals, tweaking logic, and polishing the user experience. We also added contextual explanations throughout the site to ensure that users not only play, but learn. By blending storytelling, interactivity, and real-world data, we created a unique platform where users can explore decades of agriculture with the click of a mouse.

II. CHALLENGES

Throughout the development process, we encountered several challenges that tested both our technical and design skills. One of the main difficulties was integrating multiple datasets with differing structures and time ranges into a coherent, interactive experience. Ensuring the game logic accurately reflected historical trends while remaining intuitive and engaging also proved complex. Balancing interactivity with clarity was another challenge: too much complexity risked overwhelming users, while oversimplification could compromise the educational value.

Additionally, coordinating work across team members required careful planning, especially as features became interdependent. Debugging issues in the game mechanics and aligning the visualizations with real data were time-consuming tasks that demanded close attention to detail.

Despite these hurdles, we managed to deliver a functional and polished website by maintaining clear communication and iterating continuously based on testing and feedback.

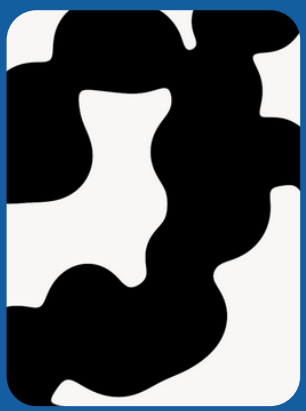
III. IMPLEMENTATION AND DESIGN OF THE WEBSITE

The website is structured around three main tabs. The “Game” tab contains the core gameplay, where users can make investment decisions and experience the interactive simulation. The “Economic Factors” tab presents key data visualizations to help users better understand trends in the U.S. dairy industry. Finally, the “How to Play” tab offers clear instructions to guide users through the experience and ensure ease of use.

In this section of the process book, we walk through the development of the website, exploring how its design evolved, the reasons behind our technical and aesthetic choices, and the challenges we encountered while building each component.

III.1 A Playful Web Design

One of our main goals while creating the visualization was to make the experience playful and fun. We wanted to turn the usually serious and complex topic of capital investment into something enjoyable and easy to explore. At the same time, we aimed to share interesting and original data, helping users learn new facts about dairy production in the U.S. in an engaging way.

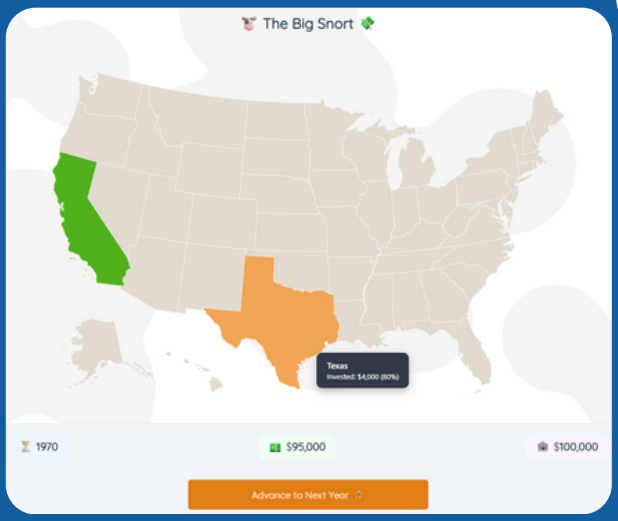


To support this, we carefully chose a font, color palette, and CSS styling that felt playful but also clean and simple. Our goal was to avoid any visual distractions so the focus would stay on the core message of the website: offering an educational and interactive journey through U.S. dairy production. In addition to this, we worked on a procedurally generated background, inspired from cow skin patterns: each time a user connects to the website, the background is freshly generated, making each background unique and organic.

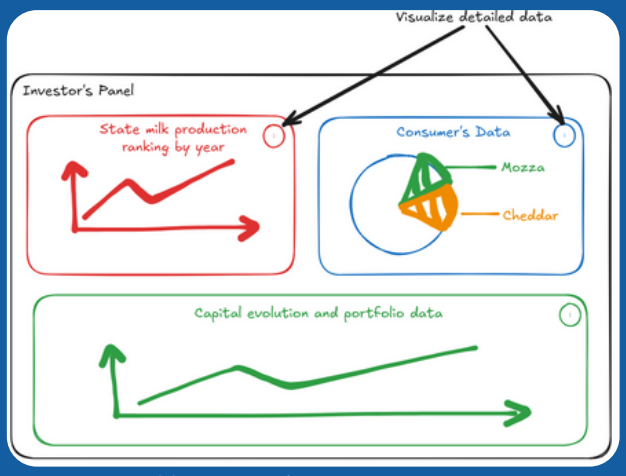
II.2 The “Game” Tab

The U.S. Map

The first component users see when they access our website is the interactive map of the United States, which allows them to invest capital in specific states. The map is designed to be minimalistic yet informative and easy to understand. Additional details appear when users hover over a state, making the investment mechanic intuitive and user-friendly.



To assist users in making investment decisions, we introduced a new visualization that displays the overall risk score of their portfolio, located just below the map. An algorithm calculates a numerical risk score, which is then represented on a color-coded bar with corresponding letter grades to clearly indicate the portfolio’s status. In addition, written feedback is provided and updated in real time as the portfolio evolves, offering users clear, dynamic guidance throughout their investment journey.



Initial sketch for Investor’s Panel

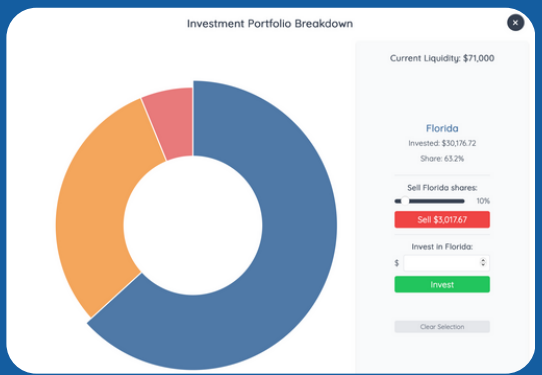
The Investor’s Panel

Another important part of the main page is the “Investor’s Panel”. The visual comparison between the sketch version and the actual implementation highlights the clear evolution from a conceptual wireframe to a refined, user-oriented dashboard.

Our first sketch presented three main sections: state milk production rankings, consumer data, and capital evolution. We expanded on these sections to provide more information to the user and better visualize the datasets we worked with.

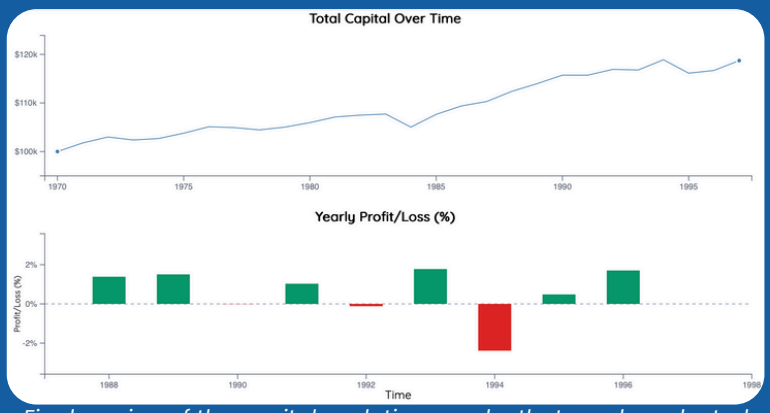
The idea of grouping information into well-defined cards was kept, each card offering specific insights: a pie chart showing the portfolio breakdown, a list of top milk-producing states with actual production figures, and two time-series visualizations that depict capital growth and annual profit or loss. These components are presented using conventional visual elements that align with familiar financial and data visualization standards.

The final version of the investor’s panel uses precision labeling, explicit titles and supporting information. This level of specificity transforms the interface from a general concept into a credible analytical tool. As designed originally, we maintained interactivity with the graphs, letting the user select the pie chart to visualize more details.



Final version of the Portfolio Breakdown

Users can also select the capital evolution graph, which has been enhanced with two complementary visualizations showing capital and profit over time. When selected, these graphs expand into a larger, more detailed view. This added level of interactivity is designed to give users easy access to their investment data, helping them make more informed and relevant decisions.



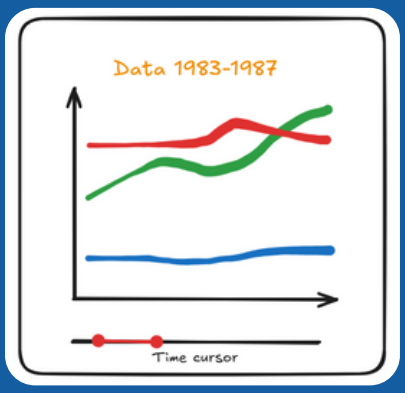
Final version of the capital evolution graphs that can be selected and expanded for a detailed view

III.3 The "Economic Factors" Tab

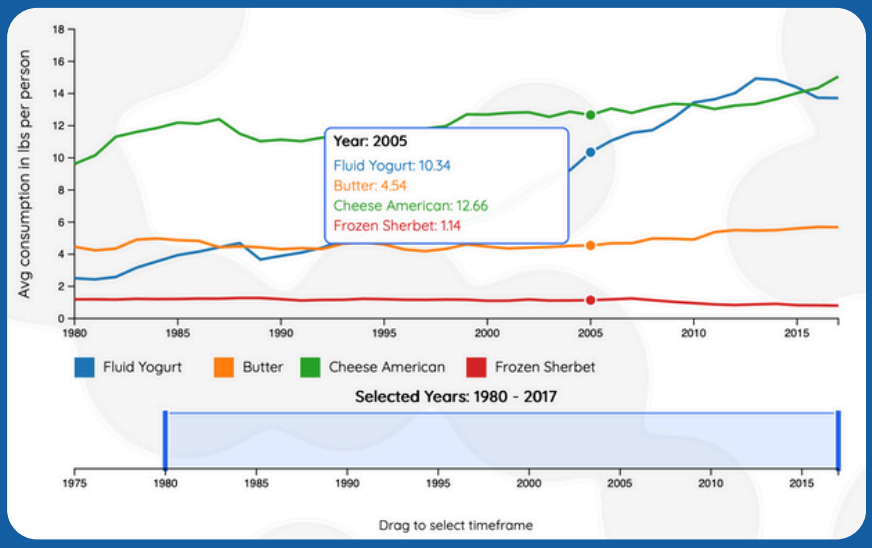
To further support users in making informed investment decisions, the second tab provides detailed data visualizations covering various aspects of dairy production and consumption in the U.S.

Time Series Data

As originally planned, we implemented a timeline cursor that allows users to select specific timeframes, making it easier to explore the evolution of dairy product data over the years. A tooltip appears when hovering over the graph, displaying precise information for each product and year, offering users a clear and interactive way to dive deeper into the data.

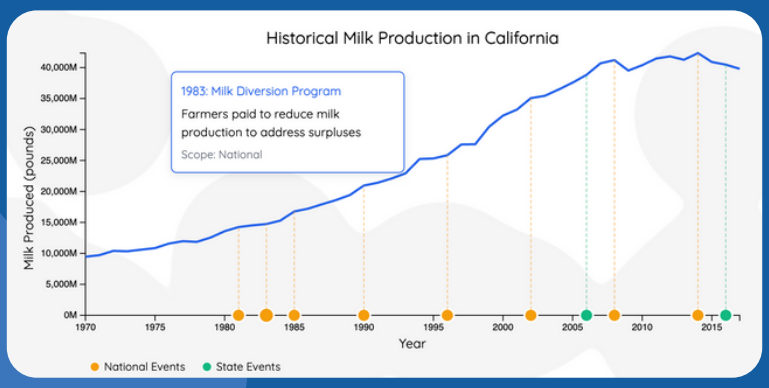


The graph updates with a smooth transition while modifying the timeframe.



Combining Data and History

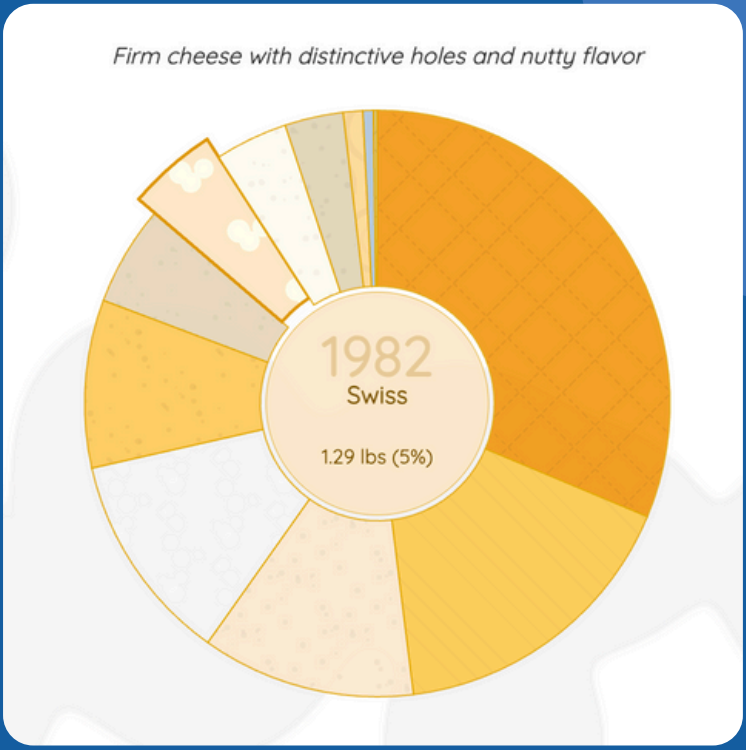
To provide deeper context, we added a visualization that combines per-state milk production data with key historical events that have shaped the dairy industry. This enriched graph allows users to see how major events influenced production trends across different states, helping them better understand the relationship between history and industry dynamics.



The events that have been relevant at a national level are displayed in yellow, while the events relevant for a single state are displayed in green. While hovering with the mouse over the events points, a tooltip with the event description is displayed.

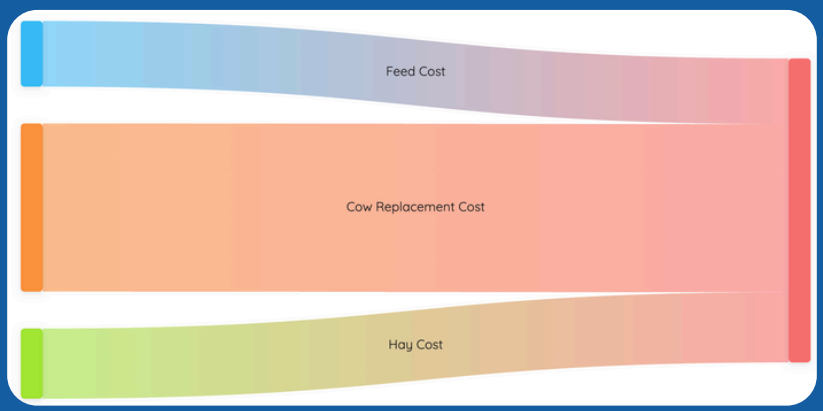
Cheese Consumption Wheel

To present cheese consumption data in a fun and engaging way, we implemented a pie chart designed to resemble a wheel of cheese. This chart illustrates how the popularity of different cheese types has evolved over time. Users can select a year to view the corresponding data, and hovering over a slice reveals the name, description, and quantity consumed for that cheese in the selected year. All hover interactions are accompanied by smooth, visually pleasing transitions. The year displayed at the center of the wheel shifts upward to make room for the cheese names, enhancing readability and user experience.



Understanding the Milk Price

To help users grasp the factors influencing milk pricing, we designed a Sankey diagram that visually breaks down the components contributing to the final milk price. By selecting a specific year, users can see how key cost drivers-such as Feed Cost, Cow Replacement, and Hay Cost-each contribute proportionally to the total price of milk. The flow-based structure of the diagram makes it easy to compare the relative weight of each factor, offering a clear and intuitive understanding of how economic inputs shape milk pricing. This visualization not only highlights price fluctuations over time but also sheds light on the underlying pressures faced by dairy producers in different periods.



PEER ASSESSMENT

Octave Charrin focused on implementing the visual and interactive aspects of the investor's panel, including the dynamic portfolio visualization. He also contributed significantly to the overall codebase and design through general refactoring. Additionally, Octave designed graphics and co-authored the process book to document the project in a clear and visually appealing way.

Jules Peyrat was responsible for implementing the core game logic and designing the capital evolution graph. He developed the algorithm behind the investment score and provided clear, informative game instructions. Jules also produced the voice-over for the screencast video, helping to present the project in an engaging and accessible format.

Gabriele Stentella led the development of the graphs and interactive visualizations featured in the "Economic Factors" tab, bringing depth and clarity to the data exploration experience. He also contributed to the voice-over for the screencast and collaborated on the visuals and writing for the process book, ensuring a cohesive and professional presentation.