# Discussion

The earlier sections provided an in-depth look at the system I've developed, focusing on its architecture, features, and the evaluation metrics that attest to its performance. This discussion aims to offer a comprehensive reflection on this work, examining its current limitations, potential for future development, and the broader implications it could have in academic and healthcare contexts.

## Integration in Academic and Healthcare Contexts

The benefits of integrating this system into academic scenarios and other healthcare contexts. The ability to dynamically create and update charts like Forest Plots could be invaluable in both educational settings and medical research. For example, the tool could be integrated into academic courses focusing on statistical methods, epidemiology, or healthcare management, offering students hands-on experience with data visualization. In healthcare settings, the system could aid in real-time data tracking and analytics, which is crucial in making timely and data-backed decisions. The application's modularity and the possibility of developing specific plugins make it highly adaptable to different academic and clinical use-cases.

## Deployment Options

As it currently stands, the system operates solely in a local environment. While this setup serves its purpose for small-scale, individual projects, it's limited in terms of scalability and ease of integration into larger workflows. Transitioning to a cloud-based service could effectively address these limitations.

AWS Lambda offers an appealing solution for several reasons. First, it eliminates the need to manage servers or clusters, allowing the focus to remain on code execution. This is particularly beneficial because you only pay for the computation time used, making it a cost-effective choice. Lambda can also automatically respond to code execution requests on any scale, from a few events per day to hundreds of thousands per second, which makes it well-suited for projects with variable demand [[50]](https://paperpile.com/c/wYkhtl/7JSB).

## Limitations

One limitation of the current system is that the developed plugins are inherently designed to suit the specific workflow requirements of the company where the author works. This could pose challenges in adapting the tool for more generalized use-cases. To enhance the system's utility across various applications, it would be necessary to either develop additional plugins or modify the existing ones to accommodate different configuration parameters.

Another significant limitation remains in terms of deploying charts that handle vector graphics, which would allow researchers to fine-tune the charts intuitively. We initially considered Figma as a potential platform for deployment, but the Figma API is predominantly read-only. It permits only writing comments but restricts manipulating graphical elements directly. This gap opens up a possibility for future work in finding or creating a more versatile platform for chart deployment.

## Planned Future Developments

While our focus has been on the Forest Plot plugin due to its prominence in our current large-scale projects, such as one that involves creating 360 Forest Plots, we acknowledge the need for additional chart types. Upcoming releases could include plugins for survival charts, bar charts, and Sankey diagrams.

To make the system more user-friendly, we aim to develop a Command Line Interface (CLI). A CLI would streamline the user experience by providing a straightforward way to configure various system parameters, ideally reducing the initial setup time.

## Software Development Learning Insights

Another important outcome of this project is the experience gained in software development methodologies and best practices. While architecting the system, there was an emphasis on employing effective development paradigms and applying established design patterns. Overall, the development process served as a practical case study in applying a blend of software engineering principles, development paradigms, and data structures to create a robust and scalable data visualization tool.