Strategy 2019-2021

Introduction

This strategy is the first evolution of the original strategy formulated in 2017. It keeps the same basic structure of five sections and it is still based on the ILIAS Vision 2015. We (the Technical Board, TB) have the mandate to develop strategies for ILIAS Software-Engineering within exactly this vision. This paper sharpens the original goals in the light of the last two years of experiences in order to even better guide our decisions in our day to day work and to foster our common understanding as a community.

Community Driven

As an open source software ILIAS is being carried by a strong and active community for many years. The whole process of developing ILIAS towards our vision and of implementing our strategies is based on this community and goes far beyond writing code. We want a product that everybody in this community can be proud of.

We set the following goals:

- Our current maintenance model is further enhanced and additional models for maintaining components addressing different needs are developed and documented in the code. With this measure we aim to ensure that every single line of code is maintained.
- Different forms of contributions to the project are made visible by naming the contributors in den appropriate place, by showcasing extraordinary contributions, and by making the different opportunities to contribute visible on the ILIAS website and in the code.
- Since the software ILIAS and it's community of users is growing constantly the number of maintainers, test-case-authors, testers, and contributors of any kind grows proportionally.
- The ILIAS association provides the necessary tools for the community to work together in an efficient way and to ensure the reliability and security of ILIAS.

Reliable Learning Management

The salience of data security and privacy in the political and social discourse is increasing. Organizations rely on IT tools for their daily work, so that accuracy and availability of central services is important. Thus requirements on software like ILIAS

used in environments where student and other data informing high-stakes decisions is gathered and evaluated increase, too. To address this, a holistic mindset needs to be fostered continuously, in order to uphold the trust of the user base in ILIAS. This is not a one time task, but a constant process to foment a developer community powering the evolution of the code that strives for excellence in this field.

We set the following goals:

- A maturity model to analyse the ILIAS code is developed and new tests and metrics to measure it and to ensure code quality are added to the environment for continuous integration.
- The coding and style conventions for standard code and plugins are streamlined making it easier to write reliable code.
- The number of unit tests is steadily increased and tests are added to all components of ILIAS.
- An effective monitoring system is installed to ensure that performance changes caused by changes in the code are detected early.
- An increasing number of Workshops organized by the community as well as the two yearly Development Conferences provide a space to exchange good (security) practices and to learn from each other. Thus security is acknowledged and cultivated as both a process and a habit.
- The already established secure channels for dealing with security issues are strengthened by increasing their attractiveness for all ILIAS users as well as the awareness of these channels in the community.
- The community searches for ways to backport all newly developed security measures to all maintained ILIAS versions. Exceptions are explained during the Jour Fixe and documented.
- The documentation on secure configuration of ILIAS in the most common scenarios is kept up to date and offers state of the art guidance to the community.
- Privacy concerns are systematically considered in our development process and documented in the Feature Wiki.

Usable for Everyone

ILIAS is used all around the world in various languages by universities, institutions of public service, companies and schools of various sizes. Among the users are many individuals with special needs, digital migrants as well as experts in e-Learning. Accordingly the design of the ILIAS user experience has to implement the principles of

consistency, visibility, simplicity, design for error and effectiveness to thus ensure, that ILIAS is usable for an increasingly more diverse target group.

We set the following goals:

- All feature requests encompassing user facing aspects contain a clear concept for the implementation of these and explicitly state how diverse user groups are addressed. This pushes this conceptual task towards the beginning of the design process.
- The UI framework used in ILIAS is further developed to ensure predictable results and to handle accessibility throughout all its elements. It is expanded to all UI components and all components of ILIAS thus ensuring a streamlined and therefore intuitive UI that does make it as easy as possible for users with diverse abilities to use ILIAS.
- The language used in the UI framework is consistent and consistently used across all levels of communication in the community making it easy for users to report errors in an actionable way.
- The channels to report UI issues are clearly and fully documented in the ILIAS code and well known in the ILIAS communitiy.
- All UI decisions are founded on discussions with experts and data from diverse user groups. These discussions are documented in the feature wiki.
- Users with special needs are included in the process of developing ILIAS.

Learning Everywhere Anytime

Learning takes place almost everywhere and anytime in life. ILIAS strives to support learning processes regardless of the availability of certain types of devices or the quality/ availability of the internet connection.

We set the following goals:

- ILIAS ships with a web interface that provides a satisfying user experience on screens ranging from a mobile phone to a high end display as well as on screen readers. All stages of our development process (requirements specification, implementation, testing) take these devices into account.
- A well defined API is implemented in ILIAS that makes it easy for developers to create frontends for different devices and for situations with reduced or missing internet connectivity.
- A concept for ILIAS to natively support off-line learning processes is developed and

accepted by the community.

Adaptable Learning Environment

ILIAS targets a huge variety of institutions with different sizes, diverse didactic requirements, and a wide range of use cases. It needs to be adaptable to the different requirements arising under these circumstances without compromising other key factors of quality software, e.g. ease of use and maintainability. A growing user base with different backgrounds increases the importance of this aim, but makes it also harder to achieve it.

We set the following goals:

- The concepts and terminology used in the application are shared by users, learning specialists and developers. They are fully documented and consistently used in code, in READMEs, and in the feature wiki. This is a prerequisite to understand if and how ILIAS can be used, configured, and extended.
- The design of interfaces between different components is an integral part of our engineering efforts. All services contain a README with thorough documentation of their purpose and on how they can be used providing or pointing to examples of their usage.
- A strategy is created to ensure that ILIAS can easily be adapted to the diverse situation found in its user base and beyond. We aim to make it easy for developers and users to swap, mix, and match parts of ILIAS and we provide a consolidated, reliable, and sustainable plugin system to create feature rich extensions.
- The option to adapt the ILIAS skin through the interface is further simplified and, if possible, expanded. Additionally the mechanism to create full featured custom skins directly is expanded to all elements of the UI. ILIAS thus provides a simple way for less and a powerful way for more tech-savvy users to adapt its look and feel.

Further Information

To achieve the aforementioned goals we took and will take several measures. The following pages document traces of our work:

- The previous iteration of this strategy (https://docu.ilias.de/goto_docu_file_5585.html)

- Daily work of the members and decisions made together with the Jour Fixe are documented in the Feature Wiki (http://www.ilias.de/docu/goto_docu_wiki_wpage_1_1357.html).
- Our issue tracker is a valuable tool to map several processes onto (http://www.ilias.de/mantis/).
- The Continuous Integration Server of ILIAS serves as a valuable tool for quality assurance (https://ilias-elearning.github.io/CI-Results/).
- Most importantly you see marks of our work in the README.md files in the ILIAS core as well as in the code itself (https://github.com/ILIAS-eLearning/ILIAS).
- We keep the community informed by regularly blogging about our activities (http://www.ilias.de/docu/goto_docu_blog_3439.html).

A general overview and description on how we understand our work can be found in our section on ilias.de: http://www.ilias.de/docu/goto_docu_grp_5089.html.