EUNIS 2019: The Process and the Success Factors in the Development of a New Nationwide Student Information System in Sweden

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1   Summary

The first Ladok system in Sweden was built in the late 1980s and a second generation that used the same database structure was put in production in the late 1990s.
The first thoughts about a totally new system with a new database structure started in the autumn of 2007 but the Ladok3-projects did not begin from the spring of 2012.
This presentation will discuss the different phases the project has gone through, the experiences learned and the factors that made the project successful.

2   The Process and the Success Factors in the Development of a New Nationwide Student Information System in Sweden

2.1   Sweden and Student Information System

Sweden has one Student Information System which is run by the Ladok Consortium. The Consortium is owned by 37 Higher Education Institutions and the Swedish National Board of Student Aid.

The Consortium develops, maintains and operates the Ladok system. The first Ladok system in Sweden was built in the late 1980s and a second generation that used the same database structure was put in production in the late 1990s.
The first thoughts about a totally new system with a new database structure started in the autumn of 2007 but the Ladok3-projects did not begin from the spring of 2012.
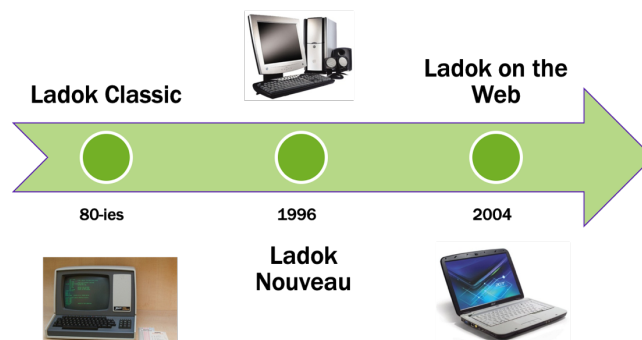

2.2   The Process in the Development

During the pre-project, a vision was developed, primarily from the technical perspective:

"The overall vision for Ladok is to create a national study administration system that is complete but with the possibility of creating local adaptions for certain parts. The system should be
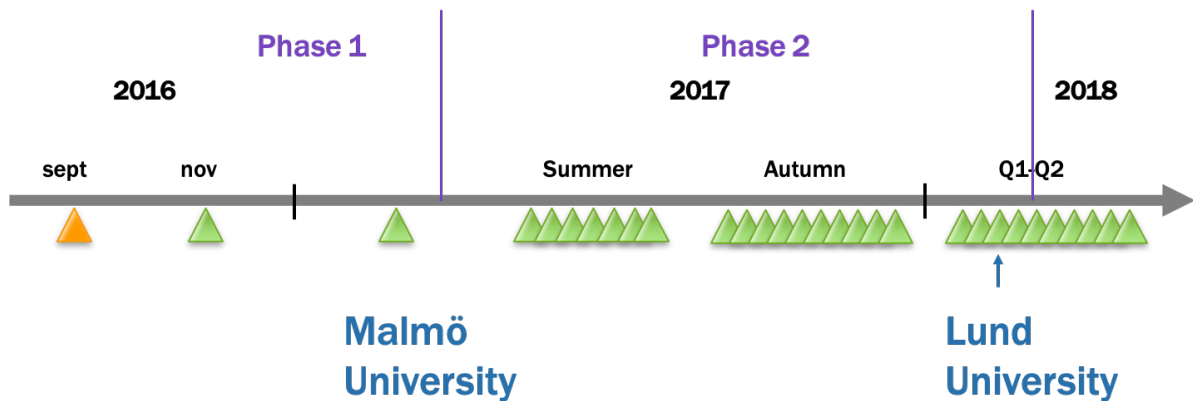
web-based and focused on self-services and enable operation in cloud service."

The picture below shows the different option that were considered in choosing the best way to get a new system. Finally the green path was chosen and that was to develop the system from scratch and Java was chosen as the programming language.
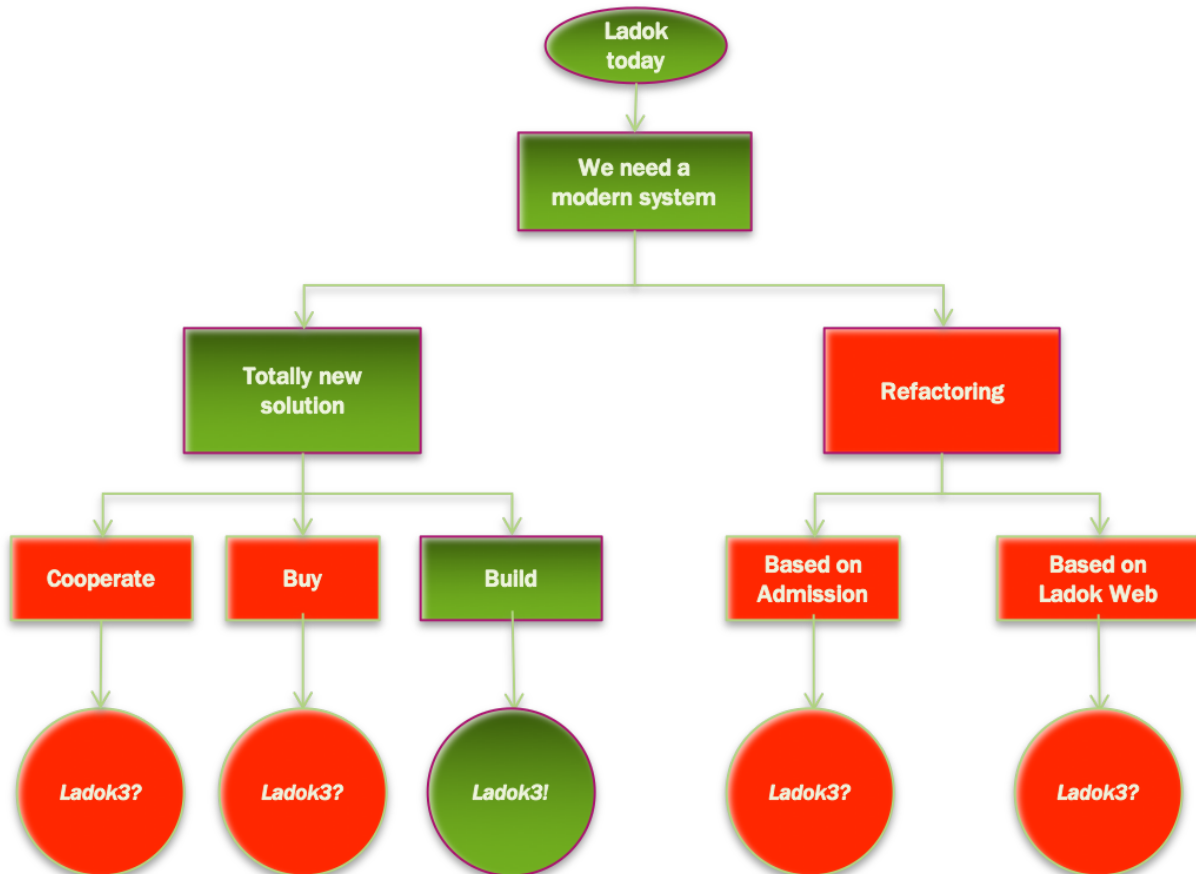
Furthermore, it was decided that the project would develop the system based on the whole sector's requirement picture. When that system was ready, all the universities would
It was also decided that all information stored in the old system would be converted mechanically to the new one.

The projected started in 2012 and due to the vagueness of what was required of the system, in other words when all of the institutions were satisfied with the features of the system, the project's backlog only growed. So in the autumn of 2015 the project need to change strategy. The project was then divided into two phases and the development focused on the needs from one medium sized Higher Education Institution in phase one and a large Institution in phase two.

| | Phase 1 | | | Phase 2 | | |
| | **2016** | | | **2017** | | **2018** |
| sept | nov | | | Summer | Autumn | Q1-Q2 |

Malmö University

Lund University

Phase 1 focused on developing the system so Malmö university could use the system. To be able to do that two smaller University-colleges transfers to the new system. Phase 2 focused on meeting the requirements from Lund University and at the same time the Consortium continued to the system shift on other universities. In March 2018 Lund University made the shift. Finally, in December 2018 all the Institutions had made the shift to the new system.

It was said from the start that the new system should be able to replace the old system and that all of the old data should be transformed into the new database. All the Institutions had their own installation of the old system and the Ladok Consortium was only the software developer. But the new system is built around one common database for all the Institutions.

The new system consists of 8 subsystems Directory information, Student information, Educational information, Participation, Results, Degree, Follow-up and External Integrations. Ladok also provides a follow-up database for each Institution.

 The Institutions communicate with Ladok through REST and Atom Feeds and can retrieve data from their follow-up database via SQL.
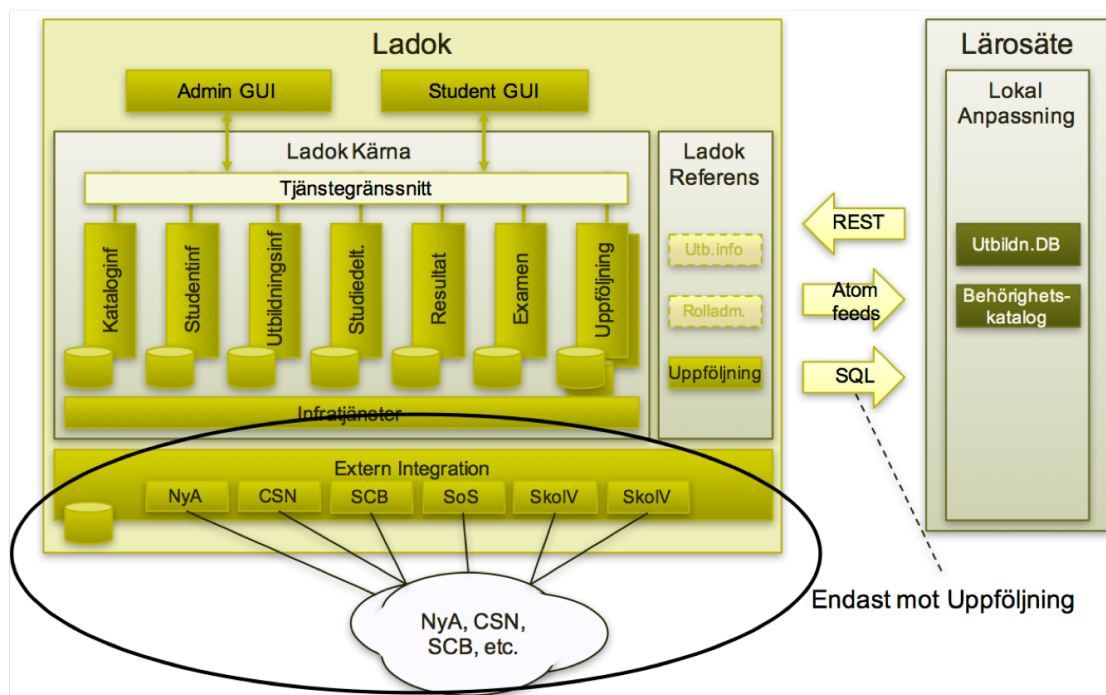
2.3 The Success Factors and Lessons Learned

Initially, the project worked towards a total requirement picture that would meet everyone the HEI's requirements and wishes in a first version of the new Ladok. During In 2015, these conditions were considered unsustainable. Therefore, the decision was to go towards an institution first (MaH) one of the most important decisions taken during the project.

Lesson learned: A clearly defined target means everything for a project.

Switching from domain-focused development to flow-focused development was another successful decision. However, it was the right way to start with domain-focused development, but the transition to flow-focused development could have happened earlier.

Lesson learned: It is important to take advantage of experience and to adapt the project accordingly.

One challenge was to get relevant feedback from the Higher Education Institutions before the system was put into use. Attempts were made, among other things, with a demo environment that the HEIs could use, but the feedback was more about the functionality that had not yet been developed beyond what was in place.

Lesson learned: Early sharp use provides the necessary feedback from operations.

An important decision was to merge development and operation to get a smoother handling of the deliveries, i.e. strive for DevOps.

Lesson learned: Necessary for the entire chain; requirements, development, operation and support to be interrelated.

3   AUTHORS' BIOGRAPHIES

Mauritz Danielsson has a degree in computer engineering with a financial focus as well as a master's degree in English literature and a long-standing experience of working in different positions in the higher education sector. He has worked as a university lecturer in English, as section manager for the study administration section at Luleå University of Technology and as head of Student Services at the same university.

Mr. Danielsson has a solid knowledge of study administration in combination with a broad network. In 2013 he received a central role in the Ladok-3 project that developed today's Ladok. In 2015, the board of the Ladok Consortium appointed Mr. Danielsson as CEO of Ladok. As CEO, he is responsible for the management of the entire Ladok Consortium, including operations and budget.