

Collaborating with software developers

More and more research results lead to software applications such as apps, sites, virtual or augmented reality, games, web applications and web modules. Developing these applications entails collaboration with software developers. To facilitate the software development process, IXA has developed a checklist and a flowchart. The checklist leads you through the process. The flowchart provides an overview of the departments involved in the various phases of development.

Checklist

► Exploration of the software development market

Conduct a market survey to prepare a shortlist with at least three companies in software development. Important criteria are experience and reference projects: does the company have experience within the knowledge domain, and has it worked with an (academic) knowledge institution before? Ask for good examples and make inquiries into the reference projects.

► Quotation process and selection of software developers

Provide a comprehensive briefing with a project description, result, planning and further expectations. Knock-out selection criteria are:

- Privacy law. Suppliers must comply with regulation regarding data protection and security (General Data Protection Regulation).
- Rights to intellectual property, use, and exploitation. In general, software developers claim the intellectual property (IP) on the software, which does not comply with the policy of knowledge institutions (purchasing and IP). This claim limits the transferability of the IP rights, constitutes an obstacle to operations and limits the possibilities for use by third parties in follow-up projects. Ask for delivery of the source code (and documentation) and the user documentation. IXA supports researchers in negotiating with software developers.
- Package of requirements (PvE). This is (partly) dependent on the order value of the application. Also keep the tender limits in mind. A PvE contains, among other things, a functional description of the process to be automated and describes the requirements for data

protection and security, reporting possibilities, ease of use, technical requirements, and requirements for the supplier. Request advice from the Purchasing and / or ICT department. These can indicate the importance of each part (must have, could have, nice to have) so that suppliers can be compared and informed choices can be made.

- Please take notice! A medical app can also be a medical aid. Medical devices need to be CE certified. The delivery of a technical file for CE certification then should be part of the delivery of the software application.

► Planning, budget and result

Make strict agreements on planning (delivery dates) and deliverables (functionality) and take control. Development of software is a complex process and communication is not always taken for granted. Take the time to understand each other. Software developers often work with an MVP (Minimal Viable Product), after which extensions follow. Make advance arrangements regarding the available budget (but DO NOT communicate the budget during the quotation process!) and about additional or less work and the final acceptance. Pay for 'deliverables' and not for efforts made. Please note that the Scrum method is generally not recommended for these kind of development projects.

► Know the target group

To be able to present the research results in a user-friendly manner, it is crucial to know the target group and the circumstances under which the application is used, whether alternatives have been developed that do virtually the same, what

the added value is and whether the product solves a problem for the target group. Involve potential users (as a test group) in the development process.

► **Platform**

Is the application offered via Android, iPhone, Windows and / or tablet? This has consequences for users and costs. The costs can double if two different platforms are chosen! When making choices, keep the user of the app in mind.

► **Terms of financing**

If the development of the application is largely financed with subsidies for research or valorisation, or by innovation funds, then it is important to be aware of the terms, which can determine the possibilities of a follow-up phase.

► **Management and maintenance costs**

After completion, the software developer charges monthly costs for updates and storage of data to keep the application available. Keep this in mind. Ask for these costs during the quotation process. This can also be outsourced to another (hosting) party.

► **Sustainable model**

After completion of the project, money will also have to be available for further development, maintenance, management, and further distribution of the app. Therefore, make an assessment of the various financing options as quickly as possible. Prepare a business plan in an early phase, which provides direction and insight into the feasibility of a sustainable model. Open source is also an option. Also take into account the Amsterdam Knowledge Institutions Valorisation Regulation.

Flowchart of the development process

In what phase are which departments involved? Please note that throughout the development process, researchers *always* remain in the lead.

