



# CHAT2LEARN

## Chatbot technologies for digital entrepreneurship education and adult learners

*Project n. 2020-1-CY01-KA204-065974*

*IO1: Developing a chatbot learning environment in the field of digital  
entrepreneurship*

*1.1. Collecting best practices and tools on Technology Enhanced Learning and  
creation of a resource library on topic*

PREPARED BY





# Good practices template

## **Good practice definition**

A “good practice” can be defined as follows:

A good practice is not only a practice that is good, but a practice that has been proven to work well and produce good results, and is therefore recommended as a model. It is a successful experience, which has been tested and validated, in a broad sense, which has been repeated and deserves to be shared so that a greater number of people can adopt it

## **Good practice criteria**

The following set of criteria will help us to understand whether a practice is a “good practice”:

- **Effective and successful:**

A “good practice” has proven its strategic relevance as the most effective way in achieving a specific objective; it has been successfully adopted and has a positive impact on individuals and/or communities

- **Technically feasible:**

Technical feasibility is the basis of a “good practice”. It is easy to learn and to implement

- **Replicable and adaptable:**

A “good practice” should have the potential for replication and should therefore be adaptable to similar objectives in varying situations

- **Environmentally, economically and socially sustainable:**



A “good practice” meets current needs without compromising the environment and/or the social cohesion of the territories

<b>Title</b> <i>Chatbots Robin and Charlie</i>	
<b>Date/Period</b> <i>Currently Available, launched initially in 2019</i>	<b>Authors</b> <i>SSH Student Housing</i>
<b>Partner</b> <i>Lidi Smart Solutions, The Netherlands</i>	

Element	Guiding question
<b>Type of practice</b>	<i>Chatbots Robin and Charlie are part of a technical application of the Chatbot Technology in the housing industry.</i>
<b>Publisher (optional)</b>	<i>Desktop research through the use of newspapers, articles and various websites related to housing services.</i>
<b>Target audience</b>	<i>The target audience for the chatbots Robin and Charlie are the customers of the website: <a href="https://www.sshxl.nl/nl">https://www.sshxl.nl/nl</a> who are the students searching for accommodation.  <i>The target audience for the concept of the chatbots Robin and Charlie are organisations that provide housing solutions for students.</i></i>
<b>Objective/Aim</b>	<i>The objective of this practice is to help students find suitable housing.</i>
<b>Location/Geographical coverage</b>	<i>The Netherlands</i>
<b>Description</b>	<i>SSH Student Housing is a service that allows students to search for and apply for their preferred student accommodation. The organisation offers housing solutions in the following cities: Rotterdam, Utrecht, Zwolle, Tilburg, Groningen, Maastricht, and Amersfoort. The cities are located in different provinces</i>



	<p>across the Netherlands. The company's values promote that they are accessible, flexible and act helpfully and respectfully towards their clients. Furthermore, the company's services are related to:</p> <ul style="list-style-type: none"> <li>- Shared accommodations for students</li> <li>- Small independent accommodation facilities for students</li> <li>- Independent accommodation facilities of graduates</li> <li>- Short-stay fully furnished living spaces</li> </ul> <p>SSH Student housing is committed to making clear agreements and staying open to feedback. They also look creative and innovative solutions together with the students.</p> <p>Through the help of their Chatbot Robin, who is tailored to the Dutch inquiries and their Chatbot Charlie, who is tailored to the English, the company is able to answer questions directly. They also support the business to:</p> <ul style="list-style-type: none"> <li>- digitalise, standardise, and simplify their work processes and</li> <li>- work towards an organization with relatively little number of employees to deliver high performance.</li> </ul> <p>Furthermore, the chatbots' goals are to direct visitors to the right pages as quickly as possible. In most of the cases where questions are asked, the Chatbots are able to respond to them. When there are more questions, the widget directs the user to WhatsApp.</p> <p>The focus on a number of main objectives:</p> <ul style="list-style-type: none"> <li>- Increasing satisfaction among students and other stakeholders.</li> <li>- Standardizing and automating back-office processes, with the ultimate goal of reducing manual handling to zero;</li> <li>- A technical architecture and a data landscape as a robust basis for new digital developments in the future.</li> </ul>
<p><b>Methodological approach</b></p>	<p>A disruptive solution within the student housing field, that makes life easier for end users. SSH is a leading player in student housing. Their ambition is to break the beaten path</p>



	<p><i>and work smarter, through the use of technology and innovations based on the latest technology.</i></p> <p><i>Their needs were to find a solution that could reduce manual operations in the back office to zero. There was a need to renew the entire digital infrastructure, make it future-proof in order to be innovate and further increase satisfaction among students and stakeholders.</i></p> <p><i>The SSH had numerous digital applications before implementing the Chatbot functions -a living space distribution system for regular and Short Stay rentals, websites, supply portals and landlord portals.</i></p> <p><i>SSH and a number of partners conducted a thorough analysis of the organization, the processes, the data, the IT landscape, the various stakeholders. The process was led by the design thinking methodology. With the restructuring of the data, the primary back-office process adjustments ensured that the number of manual process steps is reduced from 12 to 1. This process also resulted in a better customer satisfaction.</i></p>
<b>Finance</b>	<p><i>The company, SSH Housing, who owns Charlie and Robin, is the organisation which invests in the development of the chatbots.</i></p>
<b>Constraints (optional)</b>	<p><i>The challenges that SSH faced were mainly technological. Before implementing the Chatbots Charlie and Robin, the landscape of SSH consisted of too many systems. They were not all integrated with each other. And the data was also insufficiently structured and therefore not usable for data analysis or BI applications. All those different platforms did not make the 'Student Journey' optimal. This could be a constraint that other organisations looking to implement a Chatbot function may face.</i></p> <p><i>Currently, the chatbot function has not been able to completely replace the employee's support. SSH reported in the beginning of 2020, that 90% of the communication with customers still take place via email and phone. It is not clear whether the numbers have changed in 2021, since no information was available. This suggests that there are also other constraints, such as psychological amongst the users.</i></p>



<p><b>Outcomes</b></p>	<p>Data is stored in the system where that data should be stored: content in a CMS (headless SharePoint), financial data in the accounting package, resources in the ERP and business-specific data in a separate PostgreSQL database. The data was integrated via Microsoft Graph/OData APIs and the Azure Service Bus. This makes it available for BI applications and for interactions with internal and external end users.</p> <p>SSH's own business logic has been realized outside those back office systems using a healthy balance of standard software and low-code (Microsoft ecosystem) and tailor-made software (.NET Core/C#).</p> <p>The actual interfaces with the end users are made as Single Page Applications (SPA), developed with TypeScript and React, which ensure a fast and smooth user experience.</p> <p>These improvements led to:</p> <ul style="list-style-type: none"> <li>- Completely new website with renewed brand identity</li> <li>- Introducing a virtual assistant to the students</li> <li>- Supply portal integrated into the website</li> <li>- 'My environment' for tenants, on desktop and mobile</li> <li>- Notification system and message box in the my environment</li> <li>- Back office application for registrations, housing allocation, hosting, contract formation, online payment and communication processing</li> <li>- Integration with DMS, ERP (Wocas) and accounting package</li> <li>- Database for custom data</li> <li>- Integration with Data Warehouse for BI applications</li> <li>- Chatbot for quick answers to frequently asked questions</li> <li>- Cleaning and migration of existing data</li> <li>- And everything in the cloud (Azure Platform)</li> </ul> <p>The Chatbots are available through the website of the company: <a href="https://www.sshxl.nl/en/contact">https://www.sshxl.nl/en/contact</a></p>
<p><b>Replicability and/or up-scaling</b></p>	<p>These types of chatbots are ideal if an organisation is regularly faced with the same time-consuming questions. If visitors can be automatically redirected to a page with all the information they are looking for, time can be saved for more complicated</p>



	<p>cases and the speed with which they receive an answer can become higher. This is also more pleasant for the customer. In the case of lost keys, the visitor simply wants to know as soon as possible what the next steps are. This way the threshold of sending an email or picking up the phone is removed.</p> <p>Therefore, it can be concluded that there are high possibilities of extending this good practice and can be rated at level 5. The characteristics of this good practice also enable it to adapt in other contexts.</p>
<b>Conclusion (optional)</b>	Such was not shared
<b>Opinion (optional)</b>	<p>Express your opinion on a scale from 1 (=min) to 5 (=max) about:</p> <ul style="list-style-type: none"> <li>● <b>Usability - 4</b> – This service is not very innovative for the Netherlands, however it is very much innovative for the student housing industry.</li> <li>● <b>Relevance- 5</b>– It’s not only related to customer satisfaction, but also to employee efficiency, which can save time and financial resources for the business.</li> <li>● <b>Granularity- 3</b> – There are a number of technical aspects that need to be further researched and outlined.</li> <li>● <b>Integration – 4</b> - The integration of this practise is within the Chat2learn project is highly possible, because of its replicability. The concept is innovative and relevant for the education and learning sectors and through the usage of this concept many labour intensive tasks can be automated. Also answers to questions our target audience, adult learners, might have, can be provided quickly.</li> </ul>
<b>Further considerations</b>	No further considerations