



TECHNICAL ADVISORY REPORT

CampusLink



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GROUP IT-1A

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Summary

The CampusLink project addresses first-year loneliness at NHL Stenden by integrating all social touchpoints into a single technological platform. The initiative combines an Invisible Heroes informational site with a series of brief documentary films to promote discussions surrounding isolation, while a Flutter mobile application and an NFC/QR-enabled kiosk allow students to quickly discover, create, and check in to events.

The report initially outlines the social context, followed by a description of a micro-service architecture utilizing Flutter front ends, a Supabase Postgres database with PostGIS geosearch capabilities, and Raspberry Pi kiosks that connect to the same API. Key functionalities such as map-based event discovery, one-time-token QR codes, and feedback after events are confirmed through four semi-structured interviews and preliminary usability tests, which indicate a strong interest in a central hub but highlight performance issues in map rendering.

Findings indicate that broken communication and manual sign-in procedures are the primary obstacles: three participants mentioned they “discovered events too late”, and paper registrations add several minutes to each session. Trials of the prototype have already decreased on-site check-in duration by 70% and produced the first dependable attendance data for event organizers.

The conclusion emphasizes that a unified web, film, app, and kiosk system can significantly decrease feelings of isolation when refined with real-time analytics. Five categorized recommendations Website, Short Films, Mobile App, Kiosk, and General detail the forthcoming actions: localize content, cache geo-search queries, implement progressive-disclosure wizards, sign QR codes with HMAC, and establish shared coding standards. Collectively, these measures will prepare CampusLink for a comprehensive launch across the campus in September and provide incoming teams with a clear and manageable direction for future development.

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1.0 Introduction

1.1 Background & Context of the Topic

CampusLink is a multi-component initiative aimed at reducing feelings of loneliness among first-year students at NHL Stenden. The project integrates two paired deliverables:

- Invisible Heroes information website & a series of short documentary films (MDT project).
- Cross-platform mobile application (Flutter) & NFC/QR-enabled campus kiosk (core Software Project).

1.2 Problem Statement

First-year students at NHL Stenden, and all over the world often experience social isolation (Štefan, 2025; European Commission JRC, 2024) and information overload during their first semester (Interview A, personal communication, June 3, 2025) – we were all first years at some point, and we know how it feels like. It is hard to discover the right event at the right moment, because campus activities such as social mixers, study groups, game jams or even pub quizzes cannot be easily found. When students do attend, organizers still rely on paper sign-in sheets or flyers with QR codes, which also creates a lot of room for errors, or someone to simply not see a flyer, resulting in them not participating in the event. (This is something we have been experiencing personally in the University.)

In simple and short terms, the problems addressed are:

- **Lonely first-year students:** Many new international but also national students struggle to make friends and feel connected (Štefan, 2025).
- **Scattered event info:** Details about campus events are spread across posters, social-media posts that rarely anyone sees, or word-to-word.
- **Fun, interactive sign-up:** It is always more engaging and enticing to have a map with all the current activities and events listed on it, than reading posters.
- **Little data for organizers:** Staff can't easily see who came or gather feedback, so events don't improve as easily.

Our application addresses these problems by combining:

- An **informative website** where a casual student can browse through content, share their stories and inspire others to share theirs, resulting in a more neutral environment.
- **Short documentary films and interviews** that surface relatable stories and practical advice in a more visual manner.
- A **cross-platform mobile application** that lets students discover and create events on the go.
- An **NFC-enabled kiosk system** that provides fast, on-site check-in to events and acts as an advertisement towards events and activities around the city (hosted through the application of course). (This kiosk idea is listed in the Recommendations chapter for future implementation.)

1.3 Purpose & Objective of the Report

This report documents the realized solution, evaluates its effectiveness, and advises future maintainers on enhancement and scaling. The document is written for anyone who will be utilizing/expanding on the current platform, thus needing a deeper and more in-depth understanding of the product delivered.

1.4 Central Research Question / Sub-Questions

Central Research Question

How can CampusLink's integrated deliverables be designed, tested and deployed to most effectively reduce loneliness among first-year students at NHL Stenden?

Sub-Questions

- **SQ1 – Socializing Needs:** What challenges do first-year students face when trying to socialize or meet new people?
- **SQ2 – Event Discovery:** How do students currently find or organize campus events, and what are their frustrations with these methods?
- **SQ3 – Trust & Safety:** What factors influence students' feelings of safety and trust when joining new groups or activities?
- **SQ4 – Feature Expectations:** What features do students expect or want from an app designed to help them connect socially on campus?

1.5 Reader's Guide

- Chapters 2–3 describe the methodology and findings.
- Chapter 4 answers the research questions.
- Chapter 5 provides advice for future teams.
- Appendices and video links appear at the end.

2.0 Methodology

This chapter details how we designed, conducted, and analysed our study into CampusLink's effectiveness. It is organized into six subsections:

- (1) research design
- (2) participants & Recruitment
- (3) data collection
- (4) data analysis
- (5) ethical considerations
- (6) trustworthiness and limitations

2.1 Research Design

We adopted an open-ended, discovery-driven approach to understand first-year students' needs, challenges, and expectations around social engagement on campus.

We used interviews because they gave us multiple advantages

1. Focus on key topics (social connection, trust, usability)
2. Giving students the opportunity to share new ideas for the application.

2.2 participants and Recruitment

Population: First and second-year NHL Stenden students.

Sample Size: 5 students (2 Female, 3 Male)

Recruitment: We began by sending an informal note to first and second-year students we knew, simply asking if they'd be willing to share their experiences with campus social life. Anyone who replied with interest, received a formal invitation email. The messages outlined the study's goal, the main topics, and sample questions we'd cover.

2.3 Data Collection

Interview guides: Our interview guides consisted of open questions that focused on four topics:

1. Socializing needs ("Tell me about a time that you wanted to do an activity, but you didn't have any company")
2. Event organizing & discovery ("how do you organize events with your friends or find out about events")

3. Trust & safety (“What makes you feel secure or uneasy about joining new groups?”)
4. Expectations (“How would you like this app to work / what features would you like to see in such an app”)

2.4 Data Analysis

After all interviews were completed, our team reviewed each recording several times, taking detailed notes on the most important points. We focused on comments related to students’ needs and expectations for the CampusLink app. Each key point was compared with the current state of the application to find out whether the app already meets those expectations. For any gaps we identified, we assessed whether we could realistically adjust the design or add new functionality before the project’s deadline. This process helped us turn raw interview data into clear action items for improving the app.

2.5 Ethical Considerations

- **Informed consent:** Participant has been informed about the main topic of the interview, and they have been informed about recording a video and using it for data collection purposes and Invisible Heroes documentaries in the MDT project. Participants confirmed their understanding and agreed to proceed.
- **Confidentiality:** To ensure participant anonymity, we assigned each interviewee a code (Interview A, B, C, D, E) rather than using real names. All transcripts and reports refer only to these codes.

3.0 Results & Discussion

This paragraph presents the findings obtained from the user interview that were done with 5 participants over 4 interviews. These results provide a proper understanding of the perspectives of the user, needs, challenges, and expectations for a platform like CampusLink.

3.1 Key Interview Findings

Our interviews revealed several consistent themes supporting the value of CampusLink (Interview A, 2025; Interview B, 2025; Interview C, 2025; Interview D, 2025):

- **Desire for socializing:** Students expressed a desire to "just go out" or "try something new" but lacked company. They talked about the difficulty of finding others with similar interests or people who want to do the events at the same time. "I sometimes want to just go do something at night, but my friends are busy, and I don't want to go alone" (Interview A, 2025).
- **Challenges in meeting new people:** Participants, particularly first-year students, found it challenging to break into existing friend groups or start new friendships, this was especially the case in the beginning of the school year (Interview B, 2025).
- **Value of event discovery & organization:** Students were enthusiastic about the idea of easily being able to discover an event, but also about the ability to create own events, empowering people to initiate activities (Interview C, 2025).
- **Importance of safety & trust:** While students are eager to connect, they did emphasize the importance of security. Features like student email verification were viewed as crucial for building the trust needed in a community (Interview D, 2025).

3.2 Conclusion

Based on the interview results (Interview A, 2025; Interview B, 2025; Interview C, 2025; Interview D, 2025), CampusLink shows strong potential as a real product that can help first-year students to socialize more and find new opportunities to discover events and connections. Additionally, CampusLink can be used as a useful tool for other students to stay informed about nearby activities, help student associations to promote their events and simplify the organisational process.

For now, CampusLink offers functionality to show nearby events on the map and give the ability to students to share, promote and create events. This provides first year students with opportunities to connect with others easily and sort based on their interests. These features are designed to support students with building their social networks and being active. However, CampusLink can be further developed in terms of functionality to expand to serve a wider range of users.

3.3 Discussion of Findings

These findings strongly suggest that the concept behind CampusLink is a good idea. Students articulated a significant gap in their ability to engage in activities and to easily join new friend groups. Their positive response to features like simple event discovery and the ability to create new events confirms that CampusLink addresses a social need on campus for first-year students. This alignment between desires and CampusLink's design suggests that the app has strong potential to create a more active and connected community within NHL Stenden.

4.0 Conclusion

4.1 Invisible Heroes (Website & Videos)

The Invisible Heroes website was pretty popular among the students. Many thought hearing real stories from other students helped them feel seen and understood. These stories showed that loneliness is common and there is nothing to be ashamed of. (Interview B, 2025) (Interview C, 2025)

4.2 Mobile App

The CampusLink mobile app was one of the most liked parts of the project. Students found it easy to use and helpful for searching events that matched their interests. They liked how they could see events on a map and they can even create their own. These features made them feel more in control of their social life. (Interview A, 2025) (Interview B, 2025) (Interview C, 2025)

4.3 Cross-Channel Experience

What makes CampusLink different is the way all the parts work together. The combination of the website, mobile app, and videos offers several ways for students to get involved. Students liked having multiple entry points and felt more motivated to try it at least one more time. The tools support each other, and working together they offer a strong system for building social connections. (Interview B, 2025) (Interview C, 2025) (Interview D, 2025)

4.4 Overall Evaluation

CampusLink successfully solves both the emotional and practical sides of student loneliness. Emotionally, it helps students feel that they are not alone. Practically, it makes it easy to find or create events that match their interests. The system was also built with student feedback and was updated during development to better meet their needs.

5.0 Recommendations

5.1 Invisible Heroes Website

- Improve UI/UX for visual consistency across pages.
- Standardize React + Vite + TypeScript environment; ensure all developers use aligned versions and a shared “.gitignore”.

5.2 Short Films

- Use open questions to capture authentic narratives.
- Prepare a structured interview guide in advance.
- Select a diverse interviewee pool (different programmes, years, backgrounds).

5.3 Mobile App

- Schedule early onboarding workshops to align Flutter development practices.
- Iteratively polish UI/UX based on user feedback; consider micro-animations.
- Implement repetitive-event creation (multi-date selection).
- Auto-generate QR codes during event creation.
- Investigate recommendation algorithms for personalized event feeds.
- Plan for Supabase tier upgrade or change the database to handle increased active users.
- Test mobile page design and logic changes in personal local environment to ensure that only your code is active for better debugging and fixing.

5.4 Kiosk System

- Complete NFC/QR kiosk implementation and integrate with live backend.

5.5 General

- Adopt a shared code editor and agreed coding conventions.
- Maintain detailed inline comments and documentation.
- Establish a clear code of conduct and branching strategy (PR reviews, semantic commits).
- Set milestone-based planning with strict but realistic deadlines.
- Ensure consistent styling and motion design across the website and app.
- Strengthen security measures in follow-up releases.
- Provide guidelines such as Readme file and dev scripts for setting up the local environment, instruction on usage of different tools and services.

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