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*Usability Testing and Redesigning*

# **the Alcatel Lucent IP Touch 4018**

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## Executive summary

### Introduction

The goal of this project is to evaluate the usability of the Alcatel-Lucent IP Touch 4018 office phone, within the environment of the employees at the TU Delft (a technical university in The Netherlands), and to propose a re-design of the phone according to the findings of the performed tests.

### The Alcatel-Lucent IP Touch 4018

#### Product Description

Manufacturer: Alcatel – Lucent

Reference: IP Touch 4018

Description: Landline telephone terminal working on voice over IP technology, to be sold as part of a complete communications solution which includes the terminals and the network in which they work.



#### Product functions

The telephone, along with its underlying network, is capable of a very complete set of functions including (but not limited to): Voicemail service, Recent call log, Telephone book, 'Hands free' calling, Conference calling, Call forwarding (connecting the current call to a different terminal) and Call redirecting (redirecting an incoming call to a different terminal or external number).

#### Usability research

To find out how intuitive the IP Touch 4018 is and what usability problems emerge out of normal office use at the Delft University of Technology, a usability test was done. The test consisted of an online questionnaire, filled in by 50 employees of the TU Delft, an interview with four employees who filled in the questionnaire and a usability test with the physical phone and six participants who had no prior experience with the phone.

#### General conclusions

Most of the primary functions are not used, either because they are not needed in their average day work (such as forwarding a call), or because their use is too complex and the users do not know how to operate them (such as the phonebook). The phone is not sufficiently intuitive in most use scenarios. Often buttons are not understood at all or are misinterpreted and the menu structure is perceived as extensive and unclear. Voice feedback and text feedback in the display are needed while operating the menu, but these are often unclear or absent, and when present there is a general inconsistency in its use (sometimes voice is used, sometimes text). Audio and visible feedback (such as lighting buttons) is also unclear, inconsistent in use, or simply not present when performing some functions (such as dialing tones while calling a number). The phone's looks and ergonomics are perceived as good enough and fitting the office environment, yet a more attractive visual aesthetic could be achieved.

## The Redesign

The redesign of the phone offers a 'downgrade' from the IP Touch 4018, in the sense that it does not support as many functions as the IP Touch 4018, but just the basic functionality that could be used by an average office employee. It bears a basic and simple form, keeping in equilibrium straight and curved surfaces and shapes. The phone is black and the color blue is used as secondary color not only for decoration, but also for certain use cues. The functions are directly accessible through buttons with icons. The icons are selected on the basis of an online test with 257 participants. The buttons are grouped according to the moment of suggested or available use. This idea is further enhanced by the use of blue colored guiding lights surrounding each group of buttons. The guiding lights guide the user through the steps that he has to take in order to complete a chosen action. The redesign has a 30 character dot matrix display and text larger than 30 characters will automatically scroll. To set the phone in hands free mode, the user must place the handset sideways on the blue slot above the base (see picture). This way of putting the phone in handsfree is a more physical action and the user can direct his/her voice towards something in stead of a 'closed box'.



## Usability research of the redesign

To find out how intuitive the redesign is, a second usability test was done. Six participants tested a flash model and a wooden model of the design.

## General conclusion

The usability test showed that the redesign is an improvement of the original phone. The functions which were put under direct accessible keys were faster reachable, the feedback was clearer and the blue guiding lights helped participants to look in the right direction. Also some new problems were found, though most of them are easily solved in the final design but some, like the icons used, need some further research.

## The final design: 'IP Next'

### Product Description:

Reference: IP Next

Description: Landline telephone terminal working on voice over IP technology, to be sold as part of a complete communications solution which includes the terminals and the network in which they work.

### Recommendations for Alcatel

After the research we did to the IP Touch 4018 there are two main recommendations to Alcatel. The first is that usability problems are caused by the phone and not by the user: In an ideal situation a product provides no hurdles in use. The second is that things like consistency, sufficient feedback and small menus make products qualitatively better.

The IP Next is a product that is not more expensive in production costs than the IP touch 4018. Its usability was confirmed by the people who used the prototype and also its looks made a good impression. The IP Next has no conventional looks, but it is still marketable as an office phone. It has the potential to replace the IP Touch 4018 and be the starting point of new design line and vision.

