New technologies: what roles in the education and training?
Feedback and examples.

Alain Duclos¹ and Thierry Vallée² Data-avalanche.org, Aussois, France

ABSTRACT: Educate, train, improve knowledge: new technologies offer attractive opportunities, but may also have adverse effects.

What are these "New Technologies", what is it exactly? Internet has entered in our lives for almost 20 years and is part of daily use for most of us. The novelty is rather to be sought from social networks and mobile terminals.

Another novelty: the ease of development, certain technologies becoming accessible to all: mapping, geolocation, video, voice recognition and synthesis, augmented reality, etc.. Watches, glasses and other devices with GPS, camera and access to the Internet are emerging. Are they just gadgets or useful tools for awareness, prevention and training in the field of safety and avalanches?

The usefulness of new technologies is undeniable, when you have to manage large volumes of data, it facilitates their collection, their operation, the creation of new informations, spreading and archiving organized in order to provide ‘raw’ material for planned studies ... but especially for those which no one has yet thought of today.

Concrete examples of these uses exist and others probably will emerge soon.

One of the limitations is the data itself. What data is available to us, with which quality, quantity, format? It is necessary to distinguish the data that exists, the one that will soon and the one that is missing. How can we exploit, cross, correlate them? And for what uses? The approach "Open Data" offers us a good example - in other areas - of useful applications that have emerged from the availability of data of various origins.

Finally, the major risk in the use of new technologies may lie in the attraction they create, at the expense of a genuine concern for prevention or research. This is why we believe that a successful initiative can only be the fruit of a collaboration between specialists from various backgrounds.

What role for technology and developers in these fields?

A small inventory of good and bad practices is proposed that the objectives agreed at the heart of concerns remain.

KEYWORDS: Social networks, mobile, Open Data, good practices, education, safety

1 INTRODUCTION

Educate, train, improve knowledge: new technologies offer attractive opportunities, but may also have adverse effects.

In this paper, we are going to briefly present the new technologies, and discuss about their utility. Then we discuss about existing applications, available - and missing - data. And we will end with a list a good practices to develop useful applications with success.

2 THE NEW TECHNOLOGIES

What are these "New Technologies", what is it exactly? Internet has entered in our lives for almost 20 years (400 million computers in the early 2000s, 2 billion today) and is part of daily use for most of us. The novelty is rather to be sought from:

- Social networks: one billion users worldwide, more than 30 million active users in France

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1 : Alain Duclos, a.duclos@wanadoo.fr
2 : Thierry Vallée, thvallee@gmail.com
www.data-avalanche.org
- Mobile terminals: in 2013, half of Internet consultations likely carried out from mobile devices: smartphones and tablets.

Another novelty: the ease of development, certain technologies becoming accessible to all: mapping, geolocation, video, voice recognition and synthesis, augmented reality, etc.

Watches, glasses and other devices with GPS, camera and access to the Internet are emerging. Are they just gadgets or useful tools for awareness, prevention and training in the field of safety and avalanches?

It's hard to answer today. The future will show us if useful tools will be created. But two themes are promising:
- survey data in the field
- informations sharing: more and more specific, in real time and geolocated.

The usefulness of new technologies is undeniable, when you have to manage large volumes of data, it facilitates:
- Their collection
- Their operation (statistics, studies, etc.).
- The creation of new informations (eg by crossing different data like avalanche events and nivo-meteorological measurements)
- Spreading (website, exploiting the virality of social networks, etc.).
- Archiving organized in order to provide 'raw' material for planned studies ... but especially for which no one has yet thought of today.

3 EXISTING APPLICATIONS

Concrete examples of these uses for public applications exist (online databases, community sites about mountains conditions, etc.). Others probably will emerge soon.

Some examples:
- skitour.fr, camptocamp.org, gulliver.it : community sites about routes and conditions
- geoavalanche.org, data-avalanche.org : database of avalanches
- iSis : a new application for mountain rescue using smartphones
- aleaski.info : conditions, avalanches, webcams, outings, measures, etc. of the last five days, on an unique map

4 DATA – OPEN DATA

One of the limitations is the data itself. What data is available to us, with which quality, quantity, format? It is necessary to distinguish the data that exists, the one that will soon and the one that is missing. How can we exploit, cross, correlate them? And for what uses?

Some community sites publish RSS feeds or offers some XML access to their data. On camp-tocamp.org, for example, outings are available, under Creative Commons license.

Measures are available: Nivose from Météo-France, or Flowcapt from isaw.ch. But only in the form of charts, not as raw data.

If you want raw data, have a look at meteorologic.net, meteoblue.ch: you can access to geolocated weather forecasts.
And on forecast.io, you can explore the weather at a given location in the past.

The availability of different kinds of data will encourage the innovation.

The approach "Open Data" offers us good examples - in other areas - of useful applications that have emerged from the availability of data of various origins.

An example: handimap.org. Calculation of routes in a town for disabled persons, from the exact position of:
- street furniture,
- drop curbs,
- tactile surfaces for blind

These data came from different databases which were not designed to be used for this kind of application.

5 GOOD PRACTICES

Finally, the major risk in the use of new technologies may lie in the attraction they create, at the expense of a genuine concern for prevention or research. This is why we believe that a successful initiative can only be the fruit of a collaboration between specialists from various backgrounds.

What role for technology and developers in these fields? They have to be facilitators for building your project. They can bring to you some ideas, some solutions. But don't be drive by technology. Start with the why! Why do you need this application? What is the purpose?

A small inventory of good and bad practices is proposed that the objectives agreed at the heart of concerns remain:
- Put uses and users at the center of the design process and validation
- Identify who the users really are. Get to know them.
- Describe uses in their real context
- Always ask and ask again the question of "why" for each functionnality
- Put a "business expert" as project leader and drive the project by the functional aspects, not by technology. Do not allow the power to developers and technicals but ... involve and listen them to find the best compromise between functional needs and technical solutions (cost, robustness)
- Think big, start small