



AICA

Associazione Italiana per l'Informatica
ed il Calcolo Automatico

The cost of ignorance in Information Society



The ICT market is currently connected with a self-evident dyscrasia. On the one hand, supply is becoming increasingly varied and the use of digital technologies has resulted in major changes in the approaches to most jobs. In particular it has translated into the need for a change in the skills of a large number of employees whose jobs are influenced by the use of new technologies.

On the other, users are still far from being suitably trained to use new technologies. The data supplied by the European Commission suggest that one person out of two uses the computer at the workplace; nevertheless, over 60% of users have not been given any IT training. In addition, only one employee out of five has been trained at the expense of his or her employer.

In 2001 AICA, in partnership with Bocconi University, started a project – **“The cost of ignorance in information society”** - to quantitatively assess the cost of computer insufficient training ; that is, how much inadequate human resources, in terms of the workforce's late literacy about information technology, cost the Italian economy. In addition, the study was aimed at empirically assessing whether basic training, as provided, for example, by ECDL courses, can reduce such lack of training and to what extent, thus helping slash the cost of computer ignorance.

The project has been broken down in separate survey which have been currently carried on independently.



The first one was meant for **business world**: the Italian business world is underestimating the importance of learning how to use IT tools and many companies are reluctant to arrange training programmes for many of their employees. The research discovered that the annual economic impact of a delay in ensuring that a workforce is computer literate, in Italy exceeds 17 billion euros. This figure must obviously be viewed simply as a broad indicator, but its significance shows that a problem does exist and that it must be addressed in order to reduce the effects of the phenomenon. But how can investments in training contribute to this? The study also involved quantitatively assessing the ROI of users' basic IT training.

In fact the research comprised a test which was carried out on a sample of around 200 employees. The subjects answered 30 questions regarding practical problems and tasks related to individual use of PCs, before and after taking part in a course for basic IT training. The researchers discovered that a basic “ECDL like” preparation can help slash the cost of computer insufficient training by dramatically increasing the efficiency of staff who use computers; in fact acquiring computer skills results in increased productivity (about 20%), annual savings being estimated at round 17 billion euros.

Also this figure must be viewed just as a broad indicator, but it shows the level of potential ROI that can be attained with basic IT training, such as that provided by the ECDL certification.

The second survey dealt with the **health world**.

In a context which sees half of hospital employees and almost the totality of general practitioners using informatics systems, the amount of unproductive time due to limited knowledge in the use of computers entails significant costs.

The phenomenon is particularly critical in moments such as the current one which puts a strong focus on restricting health spending (linked for the most part to demographic problems) while maintaining standards in service quality.



To evaluate the costs related to unproductive time owing to limited knowledge of the informatics systems, information was gathered through direct interviews to users asking how much time on average was lost due to problems in using computers; in addition average labour costs per individual professional segment were taken into account.

The estimate of the annual cost of unproductiveness for the Italian system resulted in the order of 1% of total health expenditure in Italy. A test was carried out on around 50 doctors and nurses working in an Italian hospital to evaluate the ROI of basic IT training: the results showed that after taking part in a course for basic IT training, unproductive time decreased by around 20%.

This allowed to quantify the annual recovery of costs per individual at around € 4,000. This is a significant figure, mainly because training costs are borne once and in the order of a few hundred euros per person.

The third step of the projects, in 2007, was aimed at the **banking industry**.

Information technology is extensively relied on in this sector and, according to the survey, a bank clerk spends, on average, 72% of his or her weekly working time on the computer. The survey showed a generally very high level of knowledge of IT tools, in particular banking IT procedures. But as far as the optimized use of tools is concerned, actually assimilating IT tools in daily procedures, it's training on the job the predominant tendency.

This results in an amount of time wasted every day in understanding how to use software or helping any colleagues who need tips and assistance. So, in the banking sector too, there is a cost of IT unproductiveness which was estimated in around 350 million euros a year.



To evaluate the "return" of IT training, a test was performed on the staff of an Italian small-size bank. A class was formed with employees and cadres, who were trained with a view to obtaining the European computer driving licence (ECDL).

Overall the amount of time taken to perform the tests was shown to have been reduced by about 24%; whereas the level of IT knowledge was shown to have increased, on average, by 16%.

Extrapolating the finding to the working situation of all bank clerks (and considering the different contractual working times and, above all, the different rates of the amount of working time spent on the computer), economic return, as connected with training, can be estimated at approximately three billion euros. Therefore also in such a technological advanced sector as the banking one, IT training projects can be relied on as tools with a definitely positive impact on overall corporate performance.

The most recent research, currently underway, is focused on the largest productive structure in Italy, the **Public Administration**. In particular, at the end of 2008 it was published a report concerning the Central Public Administration, and it will be followed by a survey on Local Administration Bodies.

The analysis conducted on the Central Public Administration illustrated virtues and vices of IT training in the sector: in the Italian market Public Administration is the driving element for basic IT training. However, total investments for employee training are still rather limited; for example, according to official statistics, only 25% of users possess an ECDL and/or equivalent competences. This poses as a critical element in consideration of the role of Public Administration which represents a model of reference for the entire society.



The study also showed how widespread the use of IT systems is, involving roughly 60% of civil servants for around two thirds of their total working hours. Unproductive time, owing to inability or problems in the use of informatics systems, as determined by users, was on average in the region of one hour ten minutes per week, bringing the annual cost to a total of around 1500 euro per employee, which adds up to over 790 million euro for the entire sector.

The main causes for unproductive time at the workplace according to users' indications can be summarised into three categories:

- limited knowledge of applications (individual problems)
- time spent for helping colleagues in using the PC (problems arising from colleagues)
- a number of problems related to technical issues: printers, network downtime, etc. (technical issues not related to incompetence)

In general, a relation between lost time and the first two factors has been observed, directly attributable to users' limited IT knowledge, whereas a one to three relation exists for time lost due to technical problems.

In the Central Public Administration the amount of unproductive time directly linked to factors relating to user ignorance is 35%, while 65% was due to technical problems.

The amount of time lost, which translates into unproductiveness at work, can be reduced with various initiatives.

First of all by providing basic qualified training to users, in order to improve their ability to solve problems and reduce requests for direct support among colleagues. ECDL is the typical certification in this case. It is, however, also important to improve system performances by eliminating/reducing the causes of technical malfunctioning with interventions on service processes as well as by providing training and certification for the profiles of the IT professionals involved: in particular for those operating in IT systems management, but also for those responsible for the maintenance and planning of services.

What has been described so far is based on a qualitative approach which the research integrated with quantitative analysis to measure the return on investment for basic IT training of users.

It was calculated and quantified the entity of time recovered in performing activities using the computer owing to training. This calculation is therefore an indication of how unproductiveness can be reduced by providing a training course.

Considering the average cost of labour it is possible to determine the economic value of saved time through IT training and therefore to evaluate the relevant return on investment, at an individual level as well as at the enterprise or sector levels.

The reduction of unproductive time for central Public Administration is estimated in the region of 1500 euro a year per individual, which translates to around one million euro overall.