# DIGITAL NATIVES & DIGITAL IMMIGRANTS

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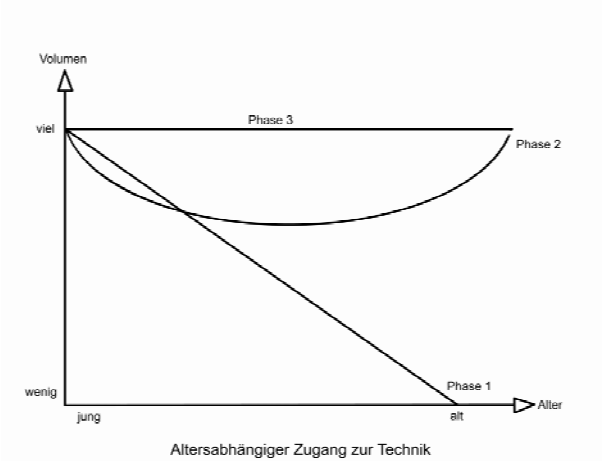
## ABSTRACT

*There are two kinds of Internet users living side by side with each other today: digital natives and digital immigrants.*

*Digital natives are people who grew up with the Internet and regard it as a tool, an instrument, that is no longer questioned.*

*Digital immigrants are the older generation in whose lifetime the Internet first came into being. These people first had to learn how to use the Internet. Their approach is different and they read the manual before getting started..*




*Correlation between age and use of technology*

## 1. DIFFERENT GENERATIONS

How does one distinguish between these two generations? Natives do not read e-mails that exceed three pages – immigrants do. The two generations' approach to new gadgets is fundamentally different. Natives use trial and error, finally comprehend how the system works and, as a result, know how to use all the functions. Immigrants work their way through hefty manuals and in this way often achieve the same result. A study carried out among teachers in Vienna has shown that older teachers can use computers as well as their younger colleagues – only their approach is different. Middle-aged teachers proved to be clearly less skilled and experienced using new technologies; Negroponte calls them the "digital homeless". [1]

Today, when new technologies enter society, they are first used by young people. In the past, it used to be the other way round: older people set the tone. Today older people are a negative example to the young.

Independent of age group, there are of course people within each group who adopt new technologies more readily than others. Basically, we can distinguish one third who are pioneers and opinion leaders, another third who are followers, and a third who are more critically minded and less inclined to accept new technologies.

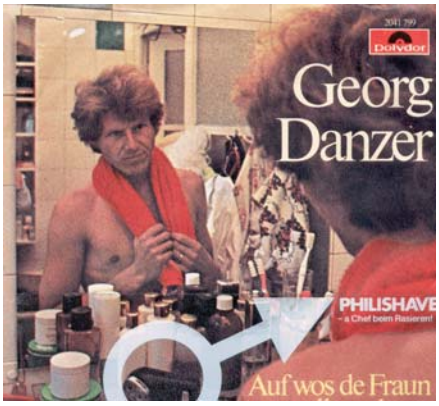
Andrea Wolffram [2] has categorised students as follows, on the basis of their attitude to technology:

[1] NEGROPONTE, Nicholas: Total digital. Die Welt zwischen 0 und 1 oder Die Zukunft der Kommunikation, München 1995.

[2] WOLFFRAM, Andrea: Studentische Technikhaltungen als gender-sensitiver Indikator für Ressourcen und Belastungen in der Studieneingangsphase, in: ERHARTER, Dorothea, Gender Mainstreaming in Bildungseinrichtungen, Graz 2005, pp. 23-26.

- **Allrounders**, who are computer- and technology oriented. At almost 30%, this is the most prominent group among university freshers.
- **Technology geeks**, who are highly interested not only in computers but in technology in general. 20% of male and 8% of female students belong to this group.
- **Computer geeks**, who account for 22% of students surveyed. Computer geeks are enthusiasts who neglect social contacts. Their circle of friends shares the same habit of using technology.
- **Beginners**, who attribute little importance to computers and technology. A pronounced gender difference can be observed here: 1 in 2 women but only 1 in 10 men belongs to this group. 17% of students surveyed can be categorised as beginners.
- The **distanced**, who account for 11% of first-year students. Their interest in computers and IT is limited and they may even feel reluctant towards technology. Nevertheless, 60% say that their interest in technology was encouraged by their parents – encouragement which can have a negative impact later in life, as the following example from Philips shows.

Philips was market leader in shavers with its brand Philishave. However, market research showed that they were losing ground with their young target group. It turned out that sons who first start shaving often receive their father's old shaver. Since Philips' market share among older men was quite high, it was also probable that the first shaver used by the son would have been a Philishave. But technology handed down by the parents is not 'cool'. As soon as he buys his own shaver, the young man will get a different product than his father's – definitely not a Philishave. To combat this trend, Philips looked for a promotional campaign to convince young men to buy a Philishave too. Philips' advertising managers found a pop star and commissioned him to write a song about shaving – a hitherto neglected subject. The record was brought on the market, and through strategic record purchases made by Philips itself the song got to top the charts. Once it was widely popular, Philips used the song in their commercials. They gave away the records as prizes to the young people who had previously bought records from them.




The Philishave had become trendy again and young people accepted it. Without proactive and even aggressive countermeasures, a product propagated by the older generation would not have found favour with the digital natives.

Digital natives can also be identified by the way they use e-mail communication and text messages:

| | | |
|---|---|---|
| CU | = | See you |
| K | = | OK |
| H4T5 | = | Home for tea at 5 |
| GTGPOS | = | Got to go parent over shoulder |
| T42 | = | Tea for two |
| hdl | = | Hab' dich lieb (I like you) |
| lol | = | Laughing out loud |
| afk | = | Absent from keyboard |
| omg | = | Oh my God |
| brb | = | Be right back |
| 8ung | = | Achtung (Careful) |
| gn8 | = | Good night |

In *"Die schwangere Madonna" (the pregnant Madonna)*, the writer Peter Henisch captures very nicely the different ways natives and immigrants use text messaging. An older man says this about the way an A-level student communicates:

'Some of [her] short messages annoyed me by their mere form. Communication beyond

grammar – when people of my age used to regard grammar as binding ever since we left school! Added to this, a number of "in" words and abbreviations whose meaning I could not always guess at.' [my translation] [3]

## The Digitalisation of Education

'Digital students' use technology differently than the generation before them. They use instant messengers, mobile phones, the Internet, MP3, iPods, online games, blogs etc. without difficulty and often in parallel. They grew up actively using these technologies. Diana Andone has established the characteristics of 'digital students' in a Europe-wide study:

- a high use of technology (computers, Internet, mobile phone) and technology is firmly embedded in students' lives
- technology is part of their education and also of their social life, both as individuals and at group level
- using technology for communication
- an increased need for synchronous communication, but with asynchronous communication still very much anchored in their lives a strong emphasis on search methods
- development of strategic thinking
- mobile phone is perceived as a familiar and informal tool (SMS is increasing as a preferred communication tool)
- strong need for instant response
- need to control their online and e-learning environment
- direct participation and control over certain aspects of the educational process
- a preference for hands-on problem-solving
- students prefer the richness of face-to-face interaction and they will prefer to communicate online or via mobile phone just with people whom they already know. [4]

The study quoted is called "DIMPLE" and examines the relationships between learners and teachers. According to the study, the stakeholders in education are clearly divided:

- teachers are digital immigrants, and
- learners are digital natives.

## Changing Behaviour

The use of machines changes people's behaviour. The use of pocket calculators in schools led to heated discussions and there were concerns that children might cease to be able to do basic arithmetic. Well, some things may have gone lost, but other things have been gained.

People no longer remember telephone numbers because their phones have a memory. Is this a loss or an improvement for society? Is it important to know phone numbers by heart, or is it better to leave this bit of 'memory' in our brains free for more important things?

Car navigation systems make us even more dependent. We rely on the computer's instructions and neglect our own sense of direction. Does this constitute a loss or should we regard the navigation system as a luxury made possible by modern technology?

Do people have poorer spelling skills today because of computer spell checks?

Electronic devices can read texts to us. Does this mean that our reading skills have become poorer?

Reading is a good example that proves the contrary.

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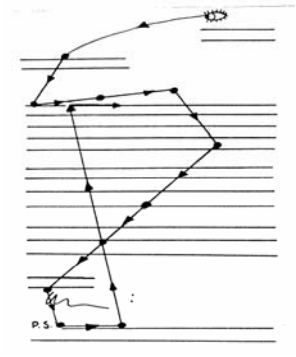
[3] HENISCH, Peter: Die schwangere Madonna, St. Pölten-Salzburg 2005, p. 274.

[4] ANDONE, Diana; DRON, Jon; PEMBERTON, Lyn: The DIMPLE (Digital Internet and Mobile Phone e-Learning Environment) – a dual device research methodology?, in Proceedings of the 12th International Conference NETTIES Networking Entities 2006, The future of E: Advanced Educational Technologies for a Future e-Europe, Timisoara 2006, pp. 54-55.



This generation reads faster than the generation before it and the next generation will be even faster readers. People today can read 200 to 250 words per minute. With the help of training this can be improved to 500 words per minute, as tests in usability labs have shown.

Apart from reading speed, the manner of reading has changed, too. People read letters in an efficient manner.

The reader checks, in the following order: who the letter is from, how his/her own name is spelt, the reference line (i.e. the contents of the letter), and the date. He/she does not read the text itself but only skims it. The recipient's eyes glance to the bottom of the page and to the end of the letter to see who signed it. He/she takes in the postscript before looking at the text itself.

At each of these points –

- sender
- address
- reference line
- date
- signature
- postscript

the reading can potentially be broken off.

The sender's identity may be enough to consign the letter to the dustbin. The enthusiastic follower of a political movement, for instance, may well throw a letter from another political organisation in the bin without reading it.

The way the recipient is addressed is critical; he or she may stop reading simply because his/her name is misspelt.

The subject line of the letter is another decisive criterion. If it does not hold any interest for the reader, he/she will stop reading and the communication breaks down.

If the date of the letter reveals that is was written a considerable number of days earlier, the letter is felt to be dated and produces less effect.

It is also relevant who signed the letter because this expresses respect for the recipient. If it was signed by a secretary on behalf of her boss, the message is less valued.

The postscript is a relic from the days of the typewriter. When one had finally finished typing a letter without mistakes and realised that an important thought had been left out, a postscript was added at the end so that one was spared retyping the whole letter. We still use postscripts today even though on a word processor we can of course insert any afterthought in the body of text itself. But there is an advantage to this, as studies in the usability lab show. Postscripts are read before the text of the letter itself – they are therefore a good device for positioning effective messages.

People read letters economically; the individual parts of the letter all constitute criteria which may lead to the breakdown of communication.

A similar survey has been carried out among readers of academic papers. The following order of priorities emerged:

- the title – it must be precise and pertinent so that the reader feels compelled to look beyond the title page
- the table of contents – the chapter headings must reflect the contents of the chapters
- the summary – gives an overview of the paper.

If these three criteria have passed the test and the reader is still interested in the paper, he or she will read some of the individual chapters. Hardly anybody ever reads an academic paper from cover to cover; one only reads particularly relevant sections.

Only fiction read for enjoyment is read from cover to cover.

Some organisations are increasingly turning to 'corporate reading': individual chapters of a technical book are divided among several people who only read the passages allotted to them and summarise them. Eventually, everybody reports about their chapter and

supplies a written summary. In this way one can become familiar with a book within a very short time.

Similarly, technical magazines are allotted to individual employees who produce abstracts for their colleagues. Every employee can decide to read the full-length version if an abstract grabs his or her attention.

Thus reading time is employed more rationally. For digital immigrants, cooperative reading used to be impermissible. At school every pupil had to read the whole book – today this work is shared.

Reading is not a natural human skill; reading means using a tool that enhances performance. Reading is not a constant human trait or competence, as the examples above show. It can be trained.

The way we purchase books has changed, too. While it is true that 81% of books are still purchased in traditional bookshops, books have come to account for almost half of all online purchases. Publishers are forced to change and adapt their channels of distribution to the Internet. In the German speaking world, book discount store Thalia tops the list of bookshops. In 2005, Thalia recorded a turnover of €332 million. It threatens to oust smaller, specialised bookshops and publishing houses with its large range and market power. It is also clear that cheap books – democratic mass products – have gone out of fashion. Neil Van Uum knows this better than anyone else. His Joseph Beth bookstores in the USA (www.josephbeth.com) are in no way inferior to giants such as Thalia where size and product range are concerned (each store has an average area of 2,700 square metres). But above all, Joseph Beth is impressive for the way it connects to clients' emotional needs beyond the printed page.

Besides literature, JB bookstores also have a music and a toy department, and, most importantly, food. Visitors can enjoy more than just a coffee and small snack; there is a large choice of set menus and visitors are invited to taste dishes from the latest cookbooks – making purchasing decisions easy. At literary dinners, shoppers and experts discuss books such as Dan Brown's *Sacrilege*. For a wine tasting at home, the fitting shelf is available too. Van Uum avoids the bleakness of store chains by integrating regional peculiarities: the writings of the local historian are on sale here as are the pralines produced by the nearby monastery. JB bookstores have been a great success with present-day shoppers . With their comprehensive strategy of *retailtainment*, they fulfil consumers' need for convenience, authenticity and regionality. Annual sales total $50 million. [5]

Basic needs of future readers

| Globalisation of knowledge | Globalisation of culture |
|---|---|
| Topics:<br>▪ Knowledge<br>▪ Research<br>▪ Economy<br>▪ Innovation<br>▪ Career | Topics:<br>▪ Fiction<br>▪ Entertainment<br>▪ Travel<br>▪ Wellbeing<br>▪ Groundedness |
| Drive:<br>▪ Half-life period of knowledge<br>▪ Globalisation of topics<br>▪ Lifelong learning<br>▪ Global Battle for Placement | Drive:<br>▪ Quality of life<br>▪ Compensating for loss of familiarity<br>▪ Refuge in alternative worlds<br>▪ Emotional participation in the world |

Source: Zukunftsinstitut

[5] ANON.: Die Zukunft des Lesens, 4 October 2006, http://www.zukunftsinstitut.de/trends/index.php.

'The culture of reading will evolve in two spheres in future: as a complex method of gathering information in the global knowledge society, and as an easing-down through fiction. By buying a book the customer of tomorrow hopes to benefit his education (and thus his competitiveness) and also wishes to emerge himself in alternative emotional worlds.' [my translation] [6]

Computers can help us learn an instrument. The synthesiser plays a piece of music and the pupil repeats it. The pupil's version is played back after that of the 'master' so that the learner can hear the difference. He knows where he stands and what he still has to achieve – it's a stock-taking analysis. Motivated in this way and with the goal clearly in sight, the learner can achieve better results.

Natives use time resources much more effectively. There is a widespread belief that young people spend a lot of time in front of their computers. Reality, however, is different [7] :

- A majority of children spend less than 30 minutes a day playing computer games.
- The majority of people who play computer games are aged between 20 and 35.
- The highest rate of Internet use in the U.S. can be found among the 35 to 44-year olds (29.2%).

IQs have risen steadily in recent years. On average natives have a higher IQ than immigrants.

## A Tool or a Burden?

It is an unanswered question whether man sees technical devices as a tool, an aid, or a burden. Do mobile phones produce stress or do they reduce it by making us constantly available?

Natives have a different approach from immigrants. Natives use the telephone in a target-oriented way. A typical example of communication without information is when a manager gets off an airplane and immediately switches on his mobile which had to be switched off during the flight. Within earshot of his fellow travellers, he communicates to his secretary or his wife that he has arrived safe and sound, or that he is now on the bus. This is information that has no substance at all. Natives behave more economically in such situations. Old people do not make such phonecalls at all as for them phonecalls still count as the luxury they once were.

The new generation in the western world grew up accustomed to material affluence, therefore there is nothing that is not achievable for them. This is expressed in their actions and thinking. The Austrian pop star Christine Stürmer sings, 'I can never get enough'. She even wants the world to revolve faster. Everything is too slow and too little for her; she wants 'more and more'.

This is a generation that also takes more risks than earlier generations. They can rely on a secure basis, on inherited property. There is no need for them to build from scratch. They can fall back on the achievements of previous generations.

Excessive desire can lead to a feeling of emptiness. 'Schopenhauer never feels hope for moderation or a midway. His passion is much too great for that. He suffers because the cause of his volition manifests itself as privation and privation inevitably attends volition up to the moment it reaches the goal and expires. Pleasure therefore has no room. Even pleasant anticipation of things which – like the hunter – one has not got but which one desires, is not pleasure to Schopenhauer. On the contrary: all the things that stimulate volition and give rise to

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[6] ANON.: Die Zukunft des Lesens, 4 October 2006, http://www.zukunftsinstitut.de/trends/index.php.

[7] OWEN, Martin: The myth of the digital native, http://www.futurelab.org.uk/viewpoint/art26.htm, October 2006.

hope lead man to feel an inner void and suffer even more from discontent.' [my translation] [8]

## More and more?

The young generation responds favourably to the 'more' which advertisers use when targeting this age group. An Austrian mobile phone company tries to attract young customers in this manner.

We often say, 'The old people would be turning in their graves if they knew about this.' In his book *Daimon*, chapter 'Décadence', Eugen Maria Schulak similarly writes:

'If Nietzsche was able to witness the social trends in today's highly developed countries, his diagnosis must inevitably be: massive *décadence*. Above all he would have been fascinated by the moral suicide of the white men, the way they collectively do penitence for the luxury of the past and make way for the weak of the world. Nietzsche was of course familiar with Christianity and early Socialism, but the *secular* self-abandonment practised today would even have astonished him. [9] [my translation]

The contraceptive pill has brought a crucial change. Prosperity has meant that families are smaller and people have more time for pleasure. But the contraceptive pill for the first time made if possible to reduce the birth rate, also in religious countries such as Ireland. Heinrich Böll in his *Irish Journal* calls it the 'special something':

'A special something has found its way to Ireland, that ominous something the English speaking world calls THE PILL – and this something paralyses me; the prospect of fewer children being born in Ireland is devastating to me…' [my translation].

Populations change through social attitudes. Some regions are continuing to grow and have reverted to the idea of the traditional family; others pursue a deliberate policy of reducing the number of children. In China every woman is only allowed to have one child. If parents have more than one child, they have to pay higher taxes; civil servants may lose their jobs. A Chinese colleague told my wife, 'Lucky are those who have twins. The state can do nothing about that.'

These only children are different from children who grow up in a group. They are little egotists. They want MORE. They find it harder to go without things they want than did the generation before them. Only children are also treated differently by parents and grandparents, whose love they do not have to share with siblings. Digital natives are different – not only because of computers, but also because of the pill.

## Egoists

The social system is becoming more egocentric. Intervals are getting shorter? The new generation has to fight harder to assert itself. The education system and the professional world are ruled by a liberalised 'performance system'. Society requires elites, in schools and industry. Elite universities are sought after. Whether they really engender elites remains to be seen. Michael Hartmann [10] even claims that elite universities provide poor education. Elite universities have internationally recognised professors whose reputation is based on their achievements in research. Thus the professors primarily devote themselves to research and do not have time for 'mere' teaching such as is required at undergraduate level. The lectures are held by assistant professors. Students only begin to register on the professor's horizon when they have reached the PhD level.

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[8] SCHULAK, Eugen Maria: DAIMON. Über die Motive philosophischen Denkens, Wien 2001, p. 48.

[9] SCHULAK, Eugen Maria: DAIMON. Über die Motive philosophischen Denkens, Wien 2001, p. 136.

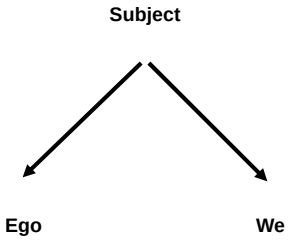
[10] HARTMANN, Michael: Der Mythos von Leistungseliten. Spitzenkarrieren und soziale Herkunft in Wirtschaft, Politik, Justiz und Wissenschaft, Frankfurt-New York 2002.

Elite universities have expensive staff and require more funding than normal universities. High tuition fees and sponsorship are necessary. The high costs exclude people from lower-income backgrounds. This is true for the U.S. and Europe alike. 'In Germany, where such elite institutions do not yet exist, a middle-class upbringing is similarly crucial in determining access to the elites. As the international PISA and IGLU tests have unmistakably shown, numerous selection mechanisms within the German education system ensure that children's educational careers are to a high degree determined by their social class, possibly even more so than in most other countries. [11] [my translation]

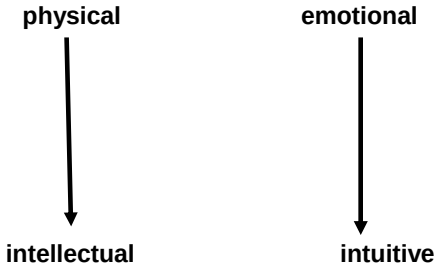
Children possess more inner balance than adults. They are interested in

- the subject,
- the 'ego', and
- the 'we'.

Focusing on the subject alone would mean overemphasising the intellect – a fault of our education system. If the 'ego' is emphasised too strongly, the lecturer becomes an actor-performer. If 'we' predominates, the whole thing ends in a mere discussion.




Kübler-Ross illustrates this balance by means of four quadrants:




With children the four quadrants are still in balance. The education system leads to a focus on the intellectual part. Pre-school children are still unspoilt by education. They intuitively say the right things and know how to listen. They are hungry for education.

If the training of the intellect cannot be 'digested', the other three quadrants become stunted. The result is 'cold knowledge'.

In music, balance is of course essential. Musicians

- know a lot about music theory
- have mastered a craft (playing an instrument/singing)
- put soul and emotion into the piece of music they interpret; technique alone would not allow for high musical quality.

For natives, cliques are more important than for immigrants. Cliques are formed on the basis of common interests:

- music
- informal exchange of information
- similar tastes and lifestyle

Affiliations with clubs and membership in youth organisations are not very significant.

A German study [12] arrives at similar results that confirm the hypothesis proposed in this paper.

[11] HARTMANN, Michael: Elite-Soziologie. Eine Einführung. Frankfurt-New York 2004, p155.

[12] BÖHRINGER, Christine: Die ewigen Abiturienten, in Zeitchancen, Hamburg October 2006, p. 39.

The question 'What do young people consider important in their lives?' yielded the following results:

| | 2002 | 2006 |
|---|---|---|
| Friendship | 6.4 | 6.8 |
| Partner | 6.3 | 6.4 |
| Family life | 5.8 | 6.0 |
| Autonomy | 5.2 | 5.8 |
| Social commitment | 4.2 | 4.6 |
| Political commitment | 3.3 | 3.2 |

The respondents were young people (natives) aged between 12 and 25. Higher numbers indicate higher importance.
The survey shows that personal relationships with friends, partner and family have become more important, whereas interest in politics and social commitment, which was much lower to begin with, has declined further.
Interestingly, computers no longer figure at the very top – they have become mere tools for young people. Sport activities predominate.
Affiliation to a peer group provides young people with a sense of belonging and helps them find their own feet.
A German survey [13] reveals that with regard to audio content, 14 to 19-year olds are primarily interested in music. The news holds the least interest for them. This changes with age: interest in music tends to decline and interest in the news tends to grow.
Across all age groups, radio is the most popular medium, followed by TV at 167 minutes per day on average.

Minutes per day, persons aged 14 and over

| | |
|---|---|
| Internet | 36 |
| Daily papers | 30 |
| TV | 167 |
| Radio | 213 |

Source: Radiotest 2005, Teletest 2005, E&I 1997, AIM 2005

*RTR Communications report 2005, p. 139*

The Internet has come to surpass daily newspapers. Daily newspapers have remained constant over several years while Internet use has risen. The average user spent 29 minutes on the net in 2004, and 36 minutes in 2005.
The traditional medium of the radio is used without distinction by all age groups today.

**Virtual Teams**
Digital natives are used to being flexible and thus find it easy to work in teams. They do not need to *learn* how to be team players. In European culture, family and schools sufficiently convey this skill.
Teams can achieve more than individuals.
If team members are dispersed across the world, they are more productive than teams that work together physically. Virtual teams work harder and more precisely. They pay more attention and communicate better. They are also forced, for their team mates' sake, to document their work better.
Physical teams do not see this as a necessity. Their communication is poorer and they do not put much effort into documenting their work.

What makes a team innovative?
Four criteria can be defined:

1. Heterogeneity (experience, mix)
2. Homogeneity of rules
3. Ambitious and clearly defined goals
4. Capability for self-reflection on a factual and emotional basis

A team is composed of different people and combines different skills. The different character traits can have positive and negative effects. To lead the team to success, one must align the positive traits and multiply them so that they become more powerful. Problems arising from negative traits must be dismissed; a

[13] Goldmedia, 2005.

good deal of tolerance is required here. Teams decide by themselves how the individual members are employed. The German joke according to which 'TEAM' is an acronym for 'Toll, ein anderer macht's' (Great, somebody else is doing the work) does not reflect reality. If an employee holds such an attitude, he or she is certain to be excluded from the team in a process of self-cleansing.

The more complex a task is, the more it is suited to be solved by a team. Great achievements are increasingly attributable to teams rather than individuals. The Nobel Prize – especially for technology – nowadays tends to go to several people.

Hierarchies in a team should be both bottom-up and top-down. Class thinking damages motivation and, consequently, the quality of the output. The knowledge of the team must not be blocked by such barriers.

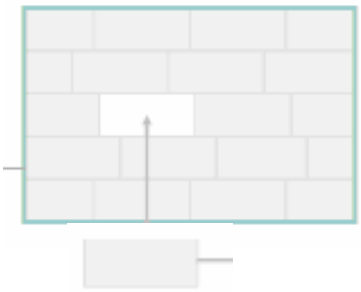
A new challenge – which to some extent got lost in recent generations – is posed by different generations working together. Their approach to technical matters is different. The average age of employees is rising. Older employees are becoming more important again and collaboration in teams of young and old people is regaining significance. Lifelong learning helps older employees to stay on the job without being in any way inferior to the young.

'A company's competitiveness increasingly depends on the *globalisation of the markets*. Accordingly, employees and organisations who work together face steadily mounting requirements. The Gartner Group analysts forecast that by the year 2009, around 60% of all new COLLABORATION PROJECTS will involve a close integration of suppliers, partners and customers. According to Gartner, $9 million will be invested in software licences for portals, collaboration and content management by 2009. Furthermore, within 10 years around 80% of a white-collar worker's job will consist no longer of routine tasks but of non-manual and collaborative activities.

To comply with the new requirements, it does not suffice any more to equip employees with e-mail and a diary. They too have to reorient themselves and create the conditions for the 'COLLABORATIVE WORKPLACE'. [14] [my translation]

Flexibility and adaptation are more essential for digital natives than for older employees.

Competence model of the past




In the past, the competence required by an employee was straightforward and clearly defined. If he or she fulfilled this requirement, he/she could be integrated into the company without difficulty. The illustration above shows a rectangle which symbolises the clearly defined tasks and competencies of each team member.

For digital natives a clear geometric representation of skills such as this no longer exists. They do not need it either. They are required to fit into a team and fill gaps even in fields where they lack competence. Conversely, a company may be able to enlarge its business activities because employees possess skills not included in the job description. [15]

## References

1. ANDONE, Diana; DRON, Jon; PEMBERTON, Lyn: The DIMPLE (Digital Internet and Mobile Phone e-Learning Environment) – a dual device research methodology?, in Proceedings of the 12th International Conference NETTIES

[14] Computer Measurement Group Austria and Eastern Europe, http://www.cmg-ae.at/, 4 October 2006.

[15] Illustrations: OBLAK, Sabina, IVENTA, Wien.

Networking Entities 2006, The future of E: Advanced Educational Technologies for a Future e-Europe, Timisoara 2006, S. 52-57

2. APOSTOLATOS, Konstantinos; TAGA, Karim; SUTER, Patrik: Next Generation Networks in Europe. Broadband in 2011 and beyond, Arthur Little, 2006
3. BARTELS, Andrew: Trends 2006: Six Economic Shifts Affecting IT, FORRESTERS, 2006
4. BERGMANN, Frithjof: Neue Arbeit, Neue Kultur, Freiamt 2004
5. GROßEGGER, Beate: Generationsbeziehung, Schriftenreihe Jugendpolitik, Wien 2005
6. GROßEGGER, Beate: Informationsgesellschaft, Schriftenreihe Jugendpolitik, Wien 2005
7. GÜNTHER, Johann: Digital Natives & Digital Immigrants, Studienverlag Innsbruck Wien München Bozen 2007
8. GÜNTHER, Johann: Der vernetzte Egoist. Telekommunikation und Computer verändern den Menschen, Studienverlag Innsbruck Wien München Bozen 2004
9. GÜNTHER, Johann: Die neue Mobilität der Gesellschaft,
10. Studienverlag Innsbruck, Wien, München, Bozen 2002
11. HAMANN, Götz; UEHLECKE, Jens: Die nächste Kolonie des Kapitalismus, http://www.zeit.de/2007/02/Second-Life?page=1, 4.1.2007
12. HARTMANN, Michael: Der Mythos von den Leistungseliten. Spitzenkarrieren und soziale Herkunft in Wirtschaft, Politik, Justiz und Wissenschaft, Frankfurt 2002
13. HEINTEL, Peter: Aphorismen zu Schlaf und Traum, http://www.uni-klu.ac.at/ipg/alt/publ/pgk/aphorismen.htm, Oktober 2006
14. HORX, Matthias: Silver Surfers, in der Kolumne „Zukunft passiert“, in Die Presse, Wien 13.9.2003
15. KATSIKIDES, Savvas: The Social Impact of Technology, Vermont, Ashgate 1998
16. LIETAER, Bernard A.: Das Geld der Zukunft. Über die zerstörerische Wirkung unseres Geldsystems und Alternativen hierzu, Sonthofen 2002
17. NN: Die Zukunft des Lesens, 4. Oktober 2006, http://www.zukunftsinstitut.de/trends/index.php
18. OWEN, Martin: The myth of the digital native, http://www.futurelab.org.uk/viewpoint/art26.htm, Oktober 2006
19. PETROVIC, Otto; FALLENBÖCK, Markus; KITTL, Christian; LANGL, Andreas: Mobile TV in Österreich. Internationale Pilotprojekte – Benutzerakzeptanz – Geschäftsmodelle – rechtliche Rahmenbedingungen, Schriftenreihe der Rundfunk und Telekom Regulierungs-GmbH, Band 2/2006, Wien
20. PLASSER, Fritz; ULRAM Peter: Das österreichische Politikverständnis", Wien 2002
21. PRESKY, Marc: Digital Natives, Digital Immigrants, 2001, http://www.twitchspeed.com/site/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.htm
22. ROGERS, Everett M.: Diffusion of Innovations, New York 1995
23. ROSALIA, Maria; CUERVO, Vicente; MENÉNDEZ, Ana Jesús López: A multivariate framework for the analysis of the digital divide: Evidence for the European Union-15, in www.sciencedirect.com, Information & Management 43 (2006) 756-766
24. RUSHKOFF, Douglas: Open Source Democracy. How online communication is changing offline politics, London 2006
25. SCHMIDL, Jacqueline: Wertewandel des Handys, http://www.report.at/artikel.asp?mid=1&kid=1&aid=9643, April 2006
26. SERENTSCHY, Georg: Infrastruktur schafft Wachstum: Schlüsselfaktoren für den IKT-Standort Österreich, Schriftenreihe der Rundfunk und Telekom Regulierungs-GmbH, Band 4/2005
27. SERENTSCHY, Georg: IKT Benchmarking Studie. Vergleich der öffentlichen IKT-Umsetzungsstrukturen in Korea, Schweden, Finnland, Dänemark, 4.8.2006, http://www.rtr.at/web.nsf/deutsch/Telekommuni

kation_IKT_Veroeffentlichungen/$file/BenchmarkingStudie.pdf

28. VOGLMAYR, Irmtraud: Das Internet als Fenster zur Welt, in: Dorer, Johanna; Geiger, Brigitte: Feministische Komunikations- und Medienwissenschaft. Ansätze, Befunde und Perspektiven der aktuellen Entwicklung. Wiesbaden 2002
29. WALES, Jimmy: An open letter to the political blogosphere, http://campaigns.wikia.com/wiki/Mission_Statement, Juli 2006