

SZENT ISTVÁN UNIVERSITY  
GÖDÖLLŐ



Ph.D. THESIS

**THE ROLE OF TELECOTTAGES IN RURAL DEVELOPMENT:  
IMPACT AND EFFICIENCY ASSESSMENT**

By

**Ferenc Hohl**

**GÖDÖLLŐ  
2010**

**Name of doctoral school:  
Organizational Sciences**

**Doctoral School of Economics and**

**Disciplinary classification:**

**Economics and Organizational Sciences**

**Head of doctoral school:**

**Dr. István Szűcs**  
**University professor, leader of the institute, member**  
**of the Hungarian Academy of Sciences**  
**Szent István University**  
**Faculty of Economy and Social Sciences**  
**Institute of Methodology of Economic Analysis**

**Director of Studies:**

**Dr. László Kulcsár**  
**University professor, candidate of sociological**  
**sciences**  
**University of West Hungary**  
**Education and Social Studies Research Center**  
**Sopron**

.....  
**Approval of the school leader**

.....  
**Approval of the director of studies**

# 1. INTRODUCTION

## 1.1. Timeliness of the topic

We live in an era called the age of information society. Information society is not a newfangled idea, its origin is dated back to 1956-57 (*Naisbitt*, 1982). Despite the new technological possibilities the existing social and economic differences did not decrease. One of the biggest problems of information society is digital disparity, which, actually, is due to the differences in the use of the information society's tools. As a tool, telecottage is an answer to the digital divide, since providing community access it can decrease digital disparity. The first telecottages in Hungary have been established in the 90s. Telecottages can be defined as "*a community access point equipped with advanced information technology*" (*Fabulya*, 2006; p. 3.). The importance of community access was obvious in the 1990s. However, in the past decade, home access has penetrated so much that the reason for existence of community access became questioned. At the same time it would be too early to "bury" the community access, since the high rate of television penetration in the households did not cease "community television watching". The fact is that prosperity does not cease community access, since the differences and disadvantages are being reproduced in a cumulative way. (*Ministry of Economics and Transport*, 2007).

## 1.2. Initial hypotheses of the thesis

**H1. Telecottages are not established where those are needed.** According to the literature telecottages are established where they are needed, that is especially in the country, in underprivileged, isolated settlements (*Gáspár-Takáts*, 1997, *Bihari*, 1999). According to my experience and opinion the assumptions of the writers does not reflect the reality, so, in general, the place of operation of telecottages is not where it would be the most necessary. In respect of judging the telecottage movement it is vital to approve or disprove this hypothesis, since this was the main objective of founding the movement.

**H2. It is the poor financial resources why telecottages do not attract the highly educated workforce, and that is the reason why the employee qualification is low.** Financial conditions of telecottage employees are unstable and insecure. Social insecurity might lead to counter-selection, since well-educated professionals can find a job in other settlements, as well. Generally the employees of telecottages earn minimum wage (*Fabulya*, 2006) that is not too attractive to the highly educated workforce. In my thesis I will examine the qualification and habitude of the telecottage workers, and I do this because human resources are a key factor in the operation of telecottages.

**H3. A key element of telecottages' efficiency assessment is the economic sustainability.** After revising my own research results and the literature on this topic I concluded that although currently there is a huge amount of database available, but it does not contain certain type of data – mainly financial information – at all or does just partly. So the result of my analysis pointed out that economic sustainability can be one of the key factors of efficiency assessment. But deficiency of information can significantly harden the conduction of economic examinations. In many cases there is no information at all about the financial means of a telecottage, since the record is incomplete even in this regard (*Kas-Larsson*, 2001, *Fabulya*, 2006). So due to lack of information and resources efficiency assessment of telecottages cannot be conducted properly.

## 2. MATERIAL AND METHOD

Methodology of the research contains a survey by questionnaires, interviews, statistical analyses, examinations based on social indices, and other complementary methods like analyzing telecottage websites. I used the following methods:

1. **Survey by questionnaires.** The survey that I conducted covered the whole country, and it provided me the larger part of the database required for the analyses. See the parameters of the survey below.
2. **Interviews.** I made interviews with the leaders of the telecottage movement, managers of telecottages and the competent officials of local governments.
3. **Statistical data collection and analysis.** Collecting data of the settlements was required for the examination of the operational environment of telecottages (sources: HTA, HCSO-TSTAR)
4. **Other methods.** Analysis of telecottage websites.

Results of the thesis were supported by data deriving from many different examinations that were conducted with different methods and in different dates. The survey, the interviews and the website analysis took place in 2003-2004. Examination of the telecottages' location – which, in my opinion, provided the most important result of the thesis – was conducted in 2009 together with László Kulcsár (director of studies) and Csilla Obádovics. Data that we used in this analysis were taken from 2004-2007 databases of HTA and HCSO-TSTAR.

The survey material was elaborated in the Spring of 2003, the pilot survey was conducted in the Summer of 2003 in Pest county<sup>1</sup>. The database of the survey became complete in 2003-2004. The sample included 95 telecottages in the country, 5 from each county. The telecottages were chosen with random selection. The most common method of the survey was personal request. In these cases filling the questionnaire was combined with an informal interview – generally with the leader of the telecottage, but sometimes I talked to other employees and visitors, too. As I personally visited a large number of telecottages I obtained valuable experience and impressions about the practical operation and operational environment of telecottages.

The survey was not representative – for several reasons. One of these reasons is weighting. There are counties where one could hardly find any telecottages (e.g. in Nógrád there are 6, in Jász-Nagykun-Szolnok there is 10 telecottages); and there are counties where there is plenty (Baranya: 37, Zala: 38). As a result of weighting much more telecottages would have gotten into the sample from the latter ones, than the first ones. Consequently there would have been counties from which only 1 telecottage would have gotten into the sample or none; and on the other hand a dozen from other counties. The point of the survey was to also examine telecottages in areas where the telecottage movement is weaker. From the research's point of view I found more interesting telecottages in those counties where these establishments are rare, and where – in case of weighting – I would have chosen much less telecottage. The other significant reason for the survey not being representative is material: the budget of the research cannot cover more, and organizational and logistic aspects also had to be taken into consideration.

---

<sup>1</sup> The pilot survey took place in the following settlements: Albertirsa, Cegléd, Ecsér, Tápiószőlős, Üllő. These telecottages was excluded from the real survey, I chose 5 other telecottages in Pest county instead of them. As a result of the pilot survey I had to make some minor changes and refinements in the questionnaire. Interviews with telecottage leaders provided me many valuable experiences. Hereby I would like to thank their contribution and useful advices.

In 2008, 5 years after the establishment survey, it seemed to be practical to repeat it in order to follow-up the changes. The sample of telecottages was meant to be the same that were surveyed previously. All the contact information (name, phone number, e-mail address) of these telecottages was available. The new survey was conducted via online questionnaires in January, 2008. But in 50 cases of the 95 the delivery of the invitation has failed; and the response rate was also low: only 11 of 45 questionnaires were filled and sent back. That is the reason why in May, 2008 I resent the questionnaire to the reachable telecottages, but the number of respondents rose only by a few. Because of the small sample size I did not use the results of the second survey in my analysis.

Database data were processed with Excel and SPSS programs. I got both numerical and textual information, so data processing required statistical calculations (basic statistics, cross tables, two-sample T-tests, discriminance analysis, indexing) and text analysis as well. For analyzing the telecottage websites I used Google search services.

### 3. RESULTS OF THE SURVEY

#### 3.1. Basic operational features of the surveyed telecottages

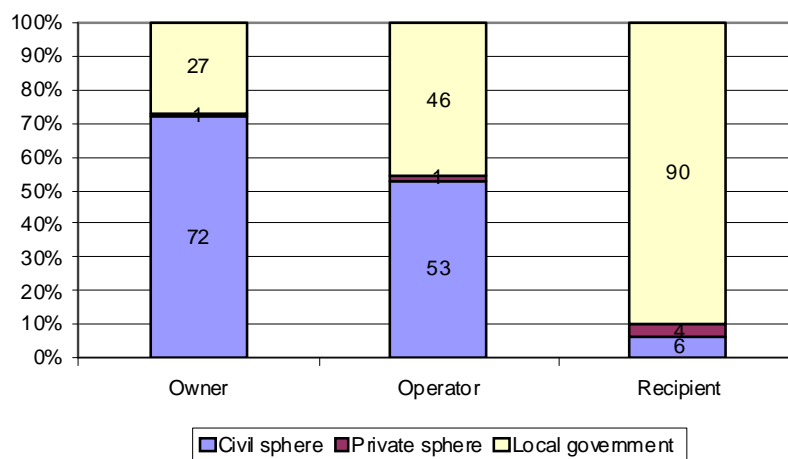
##### 3.1.1. Computers, Internet

96.8% of telecottages had Internet connection. Average number of working computers was 6.61 per telecottage. 51.5% of telecottages attracted visitors from other settlements as well. Telecottages served their own settlement and – generally – 1.43 other settlements at the same time. (Kas-Larsson (2001) reported that the average number of computers were 5.6, while Fabulya (2006) reported 7. The size of the IT toolset had increased in the recent years; this increase was fast between 2001 and 2004, than it slowed down between 2004 and 2006.)

##### 3.1.2. Structural conditions

I put a great emphasis on examination of structural conditions, because it is such an operational feature that has a significant influence on the sustainability of the telecottage. In the study of Kas-Larsson (2001) 51% of telecottages were run by civil organizations and 34% of them were run by local governments. In the study of Fabulya (2006) 55.7% of telecottages were run by civil organizations and 39.3% of them were run by local governments. According to my examinations the ownership of telecottages divides like this in practice:

1. **Owner:** civil organization (72%)
2. **Operator:** civil organization (53%)
3. **Recipient:** local government (90%)



**Figure 1: Ownership of telecottages in practice (2003-2004)**

*Source: own editing, N=95*

My results are converging toward the results of other researches, however, according to my survey the local governments take a larger part in running telecottages than according to the results of Kas-Larsson (2001) and Fabulya (2006). At the same time only 16% of telecottages are fully owned, operated and received by the local government, meanwhile 42% of telecottages are fully run by civil organizations (owner and operator is the civil organization, but recipient is the local government). So telecottages really can be considered as multisectoral establishments, and, though local and national

government have a great influence on their operation, telecottages did not become fully governmental institutions. More than half of telecottages fully run by civil organizations had some sort of special role in the operation of the local government, and most of them received subsidy from the local government – typically for operational costs. This means that telecottages – although they are not governmental institutions – greatly depend on the decisions and financial conditions of the local government. Examining the organizational structure of telecottages run by local governments and civil organizations in their long term operation, I observed the following advantages and disadvantages:

**Table 1: Advantages and disadvantages of telecottages run by local governments and civil organizations**

telecottages run by civil organizations		telecottages run by local governments	
Advantages	Disadvantages	Advantages	Disadvantages
1. Independence from the local government, and, therefore from the local politics.	1. Insecure sources of income.	1. Less social insecurity.	1. Being exposed to the sustainer.
2. Being entitled to tender.	2. Small income from tenders, constant dependence on tenders.	2. Less dependence on tenders.	2. Much less tender opportunities.
			3. The telecottage melt into the institutional system of the local government.

Source: own editing

## 3.2. Geographical location of telecottages

### 3.2.1. Methodology of the analysis

The analysis of geographical location was partly a teamwork (*Kulcsár–Hohl–Obádovics, 2009*) and partly independent data processing that I conducted on my own. First I used the following pieces of information: HI (human index), distance from towns<sup>2</sup>, and rural traits of the small region. Ranking of small regions was based on the index, and besides the researchers determined the rural traits as well<sup>3</sup> (*Obádovics–Kulcsár, 2003*). With the help of these 3 indicators I examined what type of settlements the telecottages are established in.

In the next step we had to determine the factors that can describe a settlement, which does and which does not have a telecottage. After creating the databases we determined the variables we wanted to use, and then we conducted multivariate analyses, for example, discriminant analysis. The dependent variable was the presence of telecottages. According to this the settlements could be classified into the following categories:

1. the telecottage was and is still active (the settlement had and still has a telecottage, 2004-2007)
2. the telecottage was, but now is not active (the settlement had a telecottage, but is ceased, 2004-2007)

<sup>2</sup> Categories: city (more than 50 000 inhabitants), city within 30 kilometres, city beyond 30 kilometres.

<sup>3</sup> During determining the rural traits we followed the methodology of OECD (1994).

3. the telecottage is new and active (it was established in 2007)
4. the telecottage is not active (the settlement had never had a telecottage)

Consequently settlements that had and/or have a telecottage were classified into the "involved" category, and those settlements that never had a telecottage got into the "not involved" category. The dependent variable was the telecottage involvement. (*Kulcsár–Hohl–Obádovics, 2009*).

### 3.2.2. Results

**According to the analyses there is no direct link between the HI value and the appearance of telecottages, so the advancement of a given settlement is not in connection with the appearance of a telecottage.**

At the same time the distance from cities is in connection with the disappearance of telecottages. **The closer the telecottage is located to a city (within 30 kilometres) the more probable that it will cease.** Proximity of a city might indicate many things like competitions, higher wages, better living conditions, so people don't need a telecottage so much, and they don't use its services.

Out of 47 input variables the discriminant analysis found 5 whose effect remained significant even after filtering out the interdependence. These variables were the followings: ageing index<sup>4</sup>; rate of unemployment in active population; rate of children under 18; rate of permanently unemployed people among the unemployed, and the rate of operating non-profit organizations. The characteristics of demographic structure, the presence of unemployment and the strength of civil society are the factors that are the best indicators of evolution the involvement. (See values in the table below:)

**Table 2: Relations between standardized canonical discriminant function of involvement of settlements in establishing telecottages and the variables (2007)**

Variables effecting involvement of settlements	Coefficient of discriminant function
aging index	0.774
rate of unemployment	0.475
rate of children under 18	0.477
rate of permanently unemployed people	-0.444
rate of operating non-profit organizations <sup>5</sup>	-0.501
significance level of the function	0.000
value of the function – involved settlements	-0.296
value of the function – not involved settlements	0.061

*Source: Kulcsár–Hohl–Obádovics, 2009*

**According to the results there is a statistically proven bigger chance to find a telecottage in those settlements, where the rate of unemployment is lower, the demographic indicators are more favourable, and civil organizations are more active. So the settlements where telecottages are typically established are not aging, underprivileged places with high rate of unemployment and low rate of economic activity, but settlements living among good conditions and having favourable indicators.** So we can claim with high probability that underprivileged settlements are

<sup>4</sup> Rate of inhabitants above 60 divided by the rate of children under 15.

<sup>5</sup> Rate of non-profit organizations within the business ventures operating in the settlement.

small settlements. This is also confirmed by the evolution of the settlement size variable (population) in the logistic regression analysis, where correlation is quite obvious.

**Table 3: Beta results of logistic regression of telecottage involvement by settlement size (2007)**

Type of settlement	Beta value	Significance level
less than 1000 inhabitant	-1.413	P=0.000
1001-3000 inhabitants	-0.883	P=0.003
3001-10000 inhabitants	-0.480	P=0.086
more than 10001 inhabitants	0.107	P=0.694

Source: Kulcsár–Hohl–Obádovics, 2009

Settlement with less than 3 000 inhabitants are the target group of the telecottages, however it is significantly less probable that there was a telecottage in these settlements in 2007 (year of the survey) or earlier.

Rearranging the classification of involvement, based on the available data and variables (independent variables are the same that I used in the previous analysis) further discriminant analyses took place. In this case the classification of involvement was based on the number of operating (240), ceased (183) and new (66) telecottages, and on the number of settlement without telecottages. The 4 groups of settlements were significantly discriminated by density of population and the rate of active population. These 2 variables could estimate the adherence to certain groups quite well, since in 83,7% of cases settlements were classified into their original group. The most successful classification took place in the group where settlements haven't had a telecottage so far. In there the rate was 99.3%. In this analysis we have identified 2 functions, and the following table shows that the new telecottages have the strongest positive correlation with the first dimension, and the second dimension has the same characteristic but with negative sign.

**Table 4: Relations between standardized canonical discriminant functions of involvement of settlements in establishing telecottages by population categories and the variables (2007)**

Involvement	Identifying canonical functions	
	High density of population and lower rate of active population	Low density of population and moderate rate of active population
no telecottage	-0.03985	-0.01823
active telecottage between 2004 and 2007	0.08316	0.105
inactive telecottage in 2007	0.153	0.164
new telecottage between 2004 and 2007	0.714	-0.179
The relation between the variables and the function (function coefficients) and the significance		

level of the relation		
rate of inhabitants between 18 and 59	0.308 /0.000	0.999 /0.000
density of population	0.866 /0.000	-0.586 /0.000

Source: Kulcsár–Hohl–Obádovics, 2009

**These results confirm the previous ones, so according to their geographical location the settlements where telecottages are established are not underprivileged and needy, but both demographically and economically stronger ones.**

### 3.2.3. Analysis of H1 hypothesis

However, hypothesis H1 states that telecottages are not established where those are needed. According to the completed analyses, it is statistically proven that it is more likely to find telecottages in such settlements that are in a more favourable economical situation. According to results the H1 hypothesis proved to be true. Approval of this hypothesis has a great effect since it disproves that sometimes unconditionally accepted statement of the literature that telecottages are established in poorer underprivileged settlements helping the uprise of people living there. This statement – at the same time – is the main reason for the establishment of telecottages and the whole telecottage movement.

## 3.3. Surveying the human resources

### 3.3.1. Methodology of the analysis

The survey was conducted via questionnaires and interviews. I made an interview with the available professional in each and every telecottage that I visited<sup>6</sup>. The focuses of the survey were the followings:

1. personal data (age, educational level, qualifications)
2. opinions, motivations
3. problem solving
4. working, employment

Altogether 124 employee took part in the survey. We have examined two special groups of employees: client service associates and managers (telecottage leaders). Client service associate is an employee who directly deals with the clients of the telecottage: help them, show them how to use the tools, and solves the arising problems immediately. In many cases (58%) the client service associate and the manager is the same person. The success of the telecottage is greatly influenced by the employee's personal life, since 42% of the surveyed telecottages operate as a one-man institution.

In case of client service associates the examination of qualifications and skills were more penetrating: based on these qualifications and skills, with the help of indexing method a so-called knowledge index were calculated. Knowledge index were created from the followings:

---

<sup>6</sup> I made interviews in 41 telecottages which consists 43% of the surveyed telecottages. The interview was an informal conversation following some guidelines. Main topics of the interview were personal motivations, operation of the telecottage and its effect on the life of the settlement. During the interview I was open to other topic suggestions made by the respondents, so I could gain much other type of information and experience about the life of the telecottages.

**First component:**

1. ECDL qualification
2. OKJ qualification (and its level)
3. other skills helping the work (e.g.: language skills)
4. currently taking part in any sort of training (what sort of?)
5. reading literature (if yes, what sort of?)

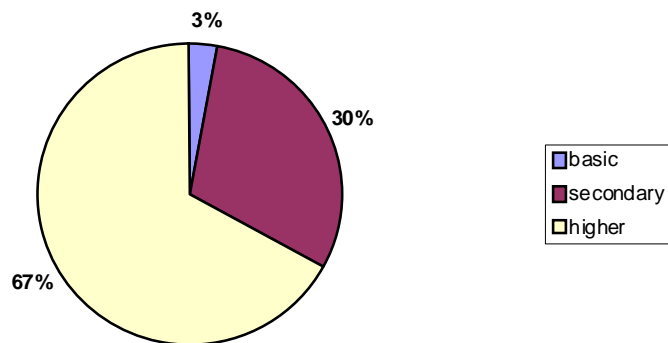
**Second component:**

1. Do you know how to use
  - ... desktop publishing programs (which one(s))?
  - ... operation systems (which one(s))?
  - ... database management applications (which one(s))?
  - ... webdesign sotfwares (which one(s))?
  - ... graphical programs (which one(s))?
2. Are they able to solve problems arising during everyday software usage? (e.g.: freeze, printer installation, etc.)
3. Are they able to solve problems arising during everyday hardware usage? (e.g.: replacing a broken monitor, etc.)

Scoring the skills and competencies without weighting, each employee got a score, which I turned into an index with values of *poor*, *moderate* and *good*. Employees rated "high" demonstrated appropriate competence in every field in question.

**3.3.2. Results**

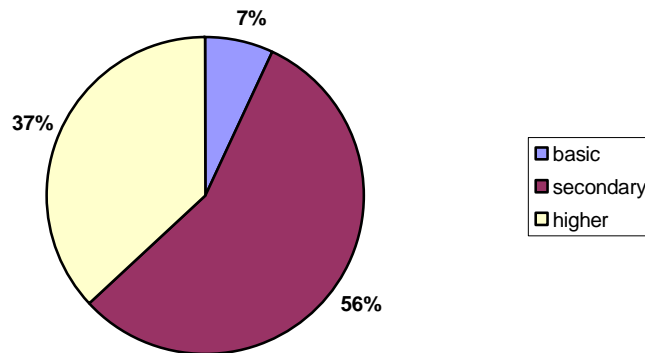
The average age of managers is 40, extreme values are 23 and 57. Vast majority of telecottage leaders is middle-aged and has higher education qualification (67%).



**Figure 2: Educational level of managers (2003-2004)**

*Source: own editing, N=91*

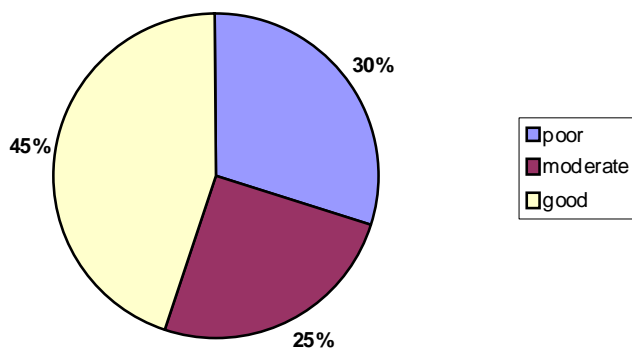
According to the results the average age of client service associates is 31, the extreme values are 18 and 57. So client service associates are mainly members of the younger generations. And their qualification is mostly at secondary level (56%).



**Figure 3: Educational level of client service associates (2003-2004)**

*Source: own editing, N=89*

Based on the knowledge index, 45% of client service associates got *good* rating. According to the results, the knowledge and qualification of client service associates is appropriate, and almost half of them demonstrated competence in the examined fields of IT knowledge that is necessary in everyday life.



**Figure 4: Knowledge index of client service associates (2003-2004)**

*Source: own editing, N=89*

Human resources indices alone do not provide enough information about the expectable efficiency of a telecottage, so we also need to examine the economic correlations of human resources. **The main problem of telecottages is the lack of money** (Kas-Larsson, 2001, Jensen, 2003, Fabulya, 2006, Phillip-Foote, 2007). It is obvious that, in the long run, with low level of or without remuneration telecottages are doomed to fail.

12% of the surveyed telecottages has no paid employees at all, associates do their work for love or as a hobby. 42% of the surveyed telecottages has only 1 paid employee, which means that nearly

half of the telecottages are "one-man" institutions, their success depend to the leader<sup>7</sup>. The average number of permanent, paid employees is 1,6 persons<sup>8</sup>. 71% of client service associates receive some remuneration (usually as employee of the local government), so 29% of them work for free. Besides, 82% of client service associates fulfil other duties as well in the telecottage<sup>9</sup>. So the question is whether the financial compensations provided by telecottages are attractive for the youth, and if telecottages can obtain and retain the young associates. This question is much more important in accordance with managers – 54% of them receive remuneration for their work. Since most of them have higher education qualification, they might leave this job, because they have a chance to get another one with good (better) remuneration. The fact that they still remain is due to that they do this job as a hobby, or for sense of community. 68% of telecottage leaders claimed that they have other duties beyond managerial tasks, and in many cases (54%) they are the client service associates as well<sup>10</sup>.

It is also necessary to mention the number of volunteers, since it is an important indicator marking the degree of the telecottage's social integration. There were volunteers working in 71% of the surveyed telecottages. Telecottages reported altogether 281 (N=68) volunteers working, and that means 4.1 volunteers per telecottage in average. In the study of Kas-Larsson (2001) there were 1087 volunteers (N=158) working in 69% of the surveyed telecottages, which means 6.8 volunteers per telecottage. So, considering the ratios as well, we can claim that the number of volunteers has decreased in the period between the two surveys.

The successful, long term operation of telecottages is greatly influenced by the personal future plans of telecottage leaders. Being clearly aware of the financial conditions of the telecottages the question of motivation becomes very important, since it is obvious that it is not the money with which telecottages can have an impact on their employees. To the question "Why did you come to work in the telecottage?" I was given the following answers:

- **For personal reasons:** hobby, challenge, practising, lack of other possibilities, obsession.
- **For community reasons:** wanting to help, community interest, development, being civil, enhancing digital skills.

Respondents generally gave positive reasons, but it is worth to consider the "lack of other possibilities", since this means working there out of necessity. In this case the leader is not motivated to work there, which is harmful from the telecottage's point of view. None of the rest of the answers mentions financial motivation. It can be considered good that the generally bad financial conditions of telecottages do not influence the attitude of the leaders, but when the motivation ceases the employee will have no interest in staying. Foreign examples also show that in many cases telecottage workers are not motivated by material interest, but by other things like training and learning (*Short*, 2001). It is worth to put some extra emphasis on "obsession" as a personal reason – it is crucial from the telecottage movement's point of view. "Obsession"<sup>11</sup>, fanaticism is one of the most important elements

---

<sup>7</sup> In the survey of Fabulya conducted in 2006, there were 29% of telecottages operating without paid employees, and 48% of them operating with 1 paid employee.

<sup>8</sup> In Kas-Larsson' survey (2001) there was 1.8 persons.

<sup>9</sup> Cleaning, administration, financials, leadership, dealing with official matters at the local government. In many cases the associate of the telecottage is an employee of the local government, and operating a telecottage is an extra duty. This does not mean extra money, only extra working hours. So the associate is not an enthusiastic volunteer, but someone who is forced to do this.

<sup>10</sup> According to the survey of Fabulya (2006) it is 63%.

<sup>11</sup> "Obsession" was mentioned by the telecottage leaders during the interviews.

of the telecottage movement. To the question "What kind of future plans do you have with working in the telecottage?" I was given the following answers:

- **For themselves:** gaining experience, improving their own situation by helping to improve the situation of the community.
- **For the community:** improving the conditions of the people and the enterprises, shaping their approach, community development, traditionalism, providing equal opportunities.
- **For the telecottage:** creating an independent and efficient telecottage, improving infrastructural conditions, starting training courses, generating demand for its services.

Personal goals and community goals are often in line with each other, that is the reason why it is possible that the telecottage leader is willing to do this job even without direct financial remuneration. However, I wonder, whether long term sustainability of telecottages can be provided by such an attitude. I wonder whether a national initiative can be built on the people's obsession, professional dedication and love for the community – in the long run. The answer is clearly no, and this has been proven by the story of the recent years: the telecottage movement has been halted, then the increase turned into decrease and fluctuation.

### 3.3.3. Analysis of H2 hypothesis

**Hypothesis H2 states that it is the poor financial resources why telecottages' does not attract the highly educated workforce, and that is the reason why the employee qualification is low.** During my study I observed that the professional skills of the client service associates of the telecottages are quite appropriate. The main problem is the significant proportion of workforce fluctuation that is due to the constant lack of financial resources and social insecurity. Despite poor financial possibilities the professional skills are not at a low level. Employees are less – if at all – motivated by financial compensation. **Despite their poor financial resources telecottages are able to keep their qualified workforce whose reason can be found in the motivations of the employees. According to results the H2 hypothesis has been disproved, it cannot be considered true.**

## 3.4. Economic characteristics

### 3.4.1. Methodology of the analysis

Economic characteristics are vital because of the long term sustainability. During my research I tried to create the detailed analysis of economic indicators, but, unfortunately, financial records of telecottages are quite deficient, as it has been claimed in the literature (*Kas-Larsson, 2001, Fabulya, 2006*) and in my own research. Though it would be important to analyze the costs and revenues, in my opinion traditional economic calculations and traditional economic concepts cannot be widely used in the economic analysis of telecottages<sup>12</sup>.

---

<sup>12</sup> The eHungary Centre (2007) made a final report on eHungary Programme that includes factual cost-benefit analysis. According to the whole of the eHungary Programme the run of costs can be fairly precisely measured. For the 7 years of the programme 20 billion HUF cost and 39 billion HUF social benefits is calculated. However, the risk of eHungary Programme is valued 16 point on a 25-point scale, and there are many insecure factors in the calculation of the benefits. So the analysis proves that it is possible to make a cost-benefit analysis of the eHungary Programme (and therein telecottages), but only at a global, summarizing level, and there is still many questions and insecurities left according to revenues and benefits.

Since usually I got uninterpretable or unreal values to the questions regarding the economic conditions of telecottages (e.g.: investment costs of the telecottage so far), this part of the questionnaire cannot be used in the analyses. One of the most important observations of the research is that so long as data providing orderliness does not improve, there is no point in asking for such information in impact assessments. At the same time the price list of the telecottages offer several opportunities for analysis. With the help of the price lists we can get a bright picture of the telecottages' pricing, which is an important field of research. The source of income is partly the sales revenue that depends on the pricing. So the pricing is also part of the economic sustainability examination.

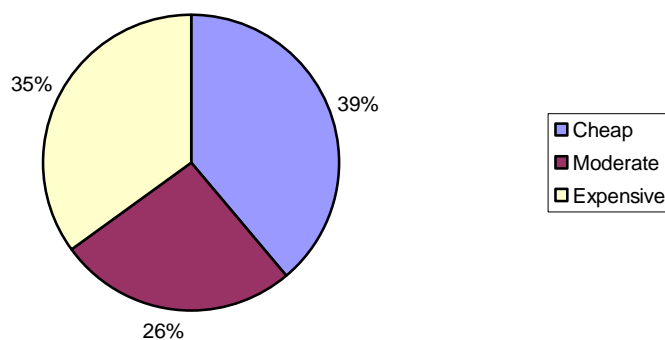
Telecottages provide several services, and there are 4 that can be found in almost each of them<sup>13</sup> and is suitable for deeper analysis:

1. Computer usage (HUF/h)
2. Internet usage (HUF/h)
3. Black and white printing (HUF/page)
4. Photocopying, A4 (HUF/page)

Categorizing the prices and creating indices resulted in the price category of a given telecottage. During indexing the price of computer and Internet usage was weighted with 1.5 – since these are the two basic services of every telecottage.

### 3.4.2. Results

By their mission, telecottages are not for-profit organizations. According to my research, 70% of the surveyed telecottages described its operation as "non-profit", 20% of them claimed that its operation is "mixed" – partly for-profit and partly non-profit – and 10% did not replied<sup>14</sup>. But during my work I gained different experience: in many cases telecottages cannot clearly define what "non-profit" operation means.



**Figure 5: Classification of the surveyed telecottages based on the price index (2003-2004)**

*Source: own editing, N=82*

<sup>13</sup> 86% of surveyed telecottages could provide such information.

<sup>14</sup> In Fabulya's survey (2006) 90% of the telecottages were non-profit.

According to the results the majority of telecottages (39%) was ranked as *cheap*, there were nearly the same that was ranked as *expensive* (35%), while only 26% was ranked as *moderate*. Considering the certain prices the dispersion was quite significant.

**Table 5: Minimum, maximum and average values of the prices for the 4 basic service of a telecottage (2003-2004)**

Service	Minimum (HUF)	Maximum (HUF)	Average (HUF)
Computer usage (HUF/h)	0	600	113
Internet usage (HUF/h)	0	1080	381
Black and white printing (HUF/page)	0	60	19.8
Photocopying, A4 (HUF/page)	0	90	12.3

Source: own editing, N=86

During the survey I have found completely free telecottages, however, maximum prices show that there were very expensive ones as well. The survey also covered the discounts provided by the telecottages. 26% of surveyed telecottages provided some kind of discount to their users, typically quantitative ones. There only a few free telecottages, and there were more that provided their services at those maximum prices shown above. My research also covered the prices of all other services but this information was not available in every telecottage, so they did not meet the criteria of the survey.

Comparing the pricing with the opinions of telecottage leaders, it can be determined that there is no direct link between the pricing and the way of operation, although most of them declared to work non-profit. So we can find both cheap and expensive telecottages among those claiming to be non-profit. According to my experiences this can be explained by the fact that telecottages are under pressure from both the people and the HTA (Hungarian Telecottage Association), so telecottage leaders prefer to call their establishment non-profit. But it is very difficult for telecottages to operate as a non-profit institution as expectations are high, but subsidies are low. They can hope to get subsidy for their operational costs primarily from the local government. 34% of surveyed telecottages get some sort of subsidy, primarily from the local government. Since 1/3 of the surveyed telecottages get some operational subsidy, it was interesting to examine whether these telecottages charge lower prices, than those which do not get subsidy. The analysis showed that there is no connection between the subsidy and the pricing of the telecottages.

I could not conduct a price comparison since telecottages usually do not have competitors in the given settlement<sup>15</sup>, so there is no such an organization or enterprise with whom it could be compared. In those settlements where telecottages has had competitors, I did not find any connection between the price level and the existence of competition.

The pricing of the telecottages was not influenced by the structural conditions either. According to the analyses telecottages run by local governments and telecottages run by civil organizations are at about the same price level, there is no statistically significant difference between them. The pricing was not influenced by the size and the set-up of the workforce either.

During the analysis of the result I could conclude that actually the price level has just a slight effect on the operation of the telecottage. The results clearly show that the price level has been analyzed from many aspects, but there was no such a factor in the operation of the telecottage that

<sup>15</sup> 16% of surveyed telecottages have competitors, which is mainly a school or a culture/community centre.

would have a clear, direct connection with the price level. **So we can claim that the price level of the telecottage is not in direct connection with the operation of the telecottage.** This statement has been approved by the interviews made with telecottage leaders, too. During the interviews telecottage leaders reported that sales revenue covered only the 1/3 of the total cost. The remaining 2/3 is covered by sponsors and tenders. Prices have just a very slight significance in the operation of the telecottage. In many cases telecottage leaders set the prices even without any kind of economic analysis or considerations. So the prices of a certain telecottage cannot be considered as indicators of success or failure, since prices have a much less influence on the operation of a telecottage than it was expected.

### 3.4.3. Analysis of H3 hypothesis

**According to H3 hypothesis a key element of telecottages' efficiency assessment is the economic sustainability. This hypothesis has been approved by the literature (Gáspár-Takáts, 1999, Kas-Larsson, 2001, Kyle, 2001, Jensen, 2003, Laczkó-Soltész, 2004, Fabulya, 2006, Phillip-Foote, 2007, etc.) and the interviews made with employees and managers of telecottages.** So the literature and the telecottage leaders unanimously claim that each and every issue of the telecottages is caused by the economic sustainability. It is the economic sustainability that defines the operation of the telecottage. Consequently economic analysis has to take precedence over efficiency assessment. However detailed analysis of economic indicators is really difficult in practice since financial records of telecottages are quite deficient. So, in my thesis, due to lack of information, I undertook to define the bases of efficiency assessment, since there are not enough data to conduct the efficiency assessment itself. Comparing the pricing with the opinions of telecottage leaders, it can be determined that there is no direct link between the pricing and the way of operation, although most of them declared to work non-profit. This means that although economic sustainability is the most important aspect of operation, not even the telecottage leaders have a bright picture of what this means in practice.

## 3.5. The relationship between the local community and the telecottage

A telecottage can have a positive effect on the life of the community with its services. One part of these services is technological (the above mentioned computer and Internet usage, photocopying, etc.). But a telecottage can provide countless other services as well that can facilitate the improvement of quality of life of crowds. A telecottage can turn into a significant provider of education, trainings and event organization. According to my research 59% of the surveyed telecottages hold some kind of training and 64% of them are engaged in event organization. The different kind of courses and trainings can be classified into the following categories:

1. professions (e.g.: typing, farming, computer science, driving, languages)
2. hobbies, leisure activities (e.g.: guitar playing, weaving)
3. school system education (computer science for elementary school students or adult education)

A telecottage can be organizer and venue of many different events. Events held in the telecottage can be classified as follows:

1. health-related events (e.g.: drug prevention, collecting ragweed)
2. social and cultural events (e.g.: parent club, pensioner club, literature club, Children's Day, charity ball)
3. leisure activities (e.g.: playhouse, movie screening)
4. professional, scientific events (e.g.: conferences, educational lectures)

**It might happen that the telecottage is not able to carry out such a task from its own resources. In these cases external help is needed. According to researches telecottages require external experts in the following cases:**

1. education (e.g.: computer science, lecturer for different lectures)
2. consulting (e.g. legal, career, lifestyle)
3. commissions (e.g.: translation, web design)

In many cases these are special fields that telecottages are not able to provide information about so they need an external expert. Consulting services are typically such activities, and, at the same time, these are those services that play a significant role in the life of the community (e.g. help to make the tax return).

In the analysis of effect and services of telecottages we cannot conceal the fact that in many cases telecottage clients are young people, mainly children, and they go to the telecottage to play and have fun, not to learn and study. This has been verified by both my own research and experience and the literature (*Bihari, 1999, Kas-Larsson, 2001, Laczkó-Soltész, 2004*). The youth generate significant revenue for the telecottage, even if their goals are not so elevated. At the same time these children spend their time in community and, more important, under supervision that fulfils a real social need.

It is not just the services with whom telecottage are able to integrate into the community's life. Telecottages, during their long term operation can get in close connection with the local government. More than half of telecottages had some sort of special role in the operation of the local government, and most of them received subsidy from the local government – typically for operational costs.

In my research I have analyzed the telecottage leaders' opinion as well, and I concluded that there are 2 main areas where a telecottage can have an effect on the settlement:

- it can influence the local community in a positive way (for example it has changed the mentality of the people; it enhance their satisfaction, and now they take a greater part in the community life of the village; and it has done so much for improving the quality of life)
- and it can have an influence on the services (for example people started to use its services, the telecottage raised the interest of the youth for these services)

### **3.6. Analysis of telecottage websites**

#### **3.6.1. Methodology of the analysis**

I conducted a survey by questionnaires including 95 telecottages. The aim of the analysis is to decide whether telecottages, as bearers and distributors of information culture, really take advantage of the possibilities provided by the technology, and whether they enhance the position of the local community and their own by innovatively appearing on the Internet and acting as "spokesman" of the local community. During my analysis I used Google search engine to find the website of telecottages. I applied the following keywords were in the following order: "nameofthesettlement" and "teleház", "nameofthesettlement". When the first search condition did not give a hit, I went on with the next one. When none of them give a hit, I tried to find the website of the telecottage by using the following internet address: „www.nameofthesettlement.hu”. This address usually leads me to the website of the settlement, and there I tried to gain information about the telecottage. If none of the searching methods

provided appraisable information, then I would conclude that the given telecottage is not present on the Internet.

Aspects of the analysis and the content of the aspects can be found in the table below. I chose these aspects, because these are objective features that can be measured well and precisely, and the result is not affected by the researcher. Also that is the reason why my research did not cover the analysis of formal and aesthetical aspects of the websites, since evaluation of these subjective features would have distorted the results.

**Table 6: Aspects of website analysis**

aspect of analysis	content of the aspect	significance of the aspect
In what kind of way can the telecottage be found on the Internet?	Can it be found in telecottage databases? What keywords do lead to it? What is the rank of the hit that leads to it? Is it easy to find telecottage-related information on the settlement's website?	A telecottage that cannot be found by a search engines and databases do not keep a record of it, technically does not exist.
In what kind of way is the telecottage present on the Internet?	Internet presence means that the telecottage has its own or partially owned website, or has some information published on the Internet. The idea of independent website refers to a website that has independent structure and menu, while a partially owned website is a part of the settlement's website without independent structure and menu.	This is the most important aspect of the analysis. The telecottage is able to appear on the Internet via the website. An inappropriate website cannot fulfil its function. Not only basic information can be published on the website, but other telecottage-related contents, technical materials, experience, observations as well, so locally accumulated knowledge can appear on the Internet providing an opportunity for anybody to read and use it.
Does the telecottage publish its contact information, opening hours and price list on the Internet?	Is all the contact information published including name of the telecottage leader, and address, phone number and e-mail address of the telecottage? Is the list of services published including the prices of the services?	Telecottages as public service providers have to make the most important information of their operation available, so that anyone could get the up-to-date information about it.
Does the website have any foreign language version?	What foreign languages are the website translated into?	The website of the telecottage is a medium, it can open window to the world, and through this window the community can step outside the local level and appear at global level. But to become a global "window" the telecottage has to offer foreign language versions on its website.
Is the telecottage's website reachable through the settlement's website?	Is there a link on the settlement's website leading to the telecottage's website? How can we reach the website of the telecottage or some information related to it?	If the telecottage does not have a website, it is important that all telecottage-related information should be easily accessible on the settlement's website. If this information is hard to find, then the visitor of the settlement's website won't find them, so actually the telecottage is not present on the Internet.

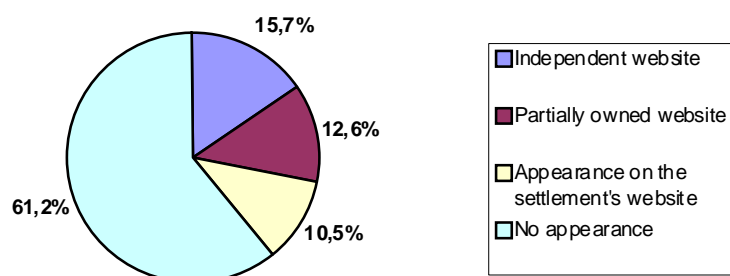
If telecottage's website cannot be found, does the settlement have a website?

This question is important, because if there is no telecottage website, every information regarding the telecottage and even some important telecottage-related content can be published on the settlement's website only with a small effort.

Source: own editing

### 3.6.2. Results

38.9% of the surveyed telecottages are present on the Internet in some way. 15.7% of them had their own, independent website, 12.6% of them had a different kind of (partially owned) website. And 10.5% just published some minimal information on the website of the settlement.



**Figure 6: Internet presence of telecottages (2004)**

Source: own editing, N=95

62.1% of the surveyed settlements had a website. 84.3% of the telecottages being present on the Internet had a link on the settlement's website. In 15.7% of the cases the settlement itself did not have a website, but the telecottage did.

64.9% of telecottages being present on the Internet could be found by searching for the "name of the settlement" and "teleház". Searching for only the "name of the settlement" 21.6% of telecottages could be found, and the [www.nameofthesettlement.hu](http://www.nameofthesettlement.hu) Internet address lead to success in 8.1% of the searches. 5.4% of the telecottages could not be found with any of these methods, so I had to turn to the database at [www.telefalu.hu](http://www.telefalu.hu).

In 81.1% of cases the first hit of the search engine was the link of the telecottage. In 9.1% of cases the telecottage's website was the 2nd hit, and in the rest of the cases I could find the link after minimum the 3rd hit.

Contact information results are shown in the table below. 52.8% of telecottage websites provided complete contact information: address, phone number and e-mail address of the telecottage, name of the telecottage leader. 47.2% of the provided deficient contact info, some of the above mentioned information was missing. The most common missing information was the name of the telecottage leader (63.9%), and the most common given info was the address of the telecottage (80.6%)

**Table 7: Contact information of telecottages provided on the website of the telecottage (2004)**

Type of information	Rate of websites providing it
name of the telecottage leader	63.9%
address of the telecottage	80.6%
phone number of the telecottage	77.8%
e-mail address of the telecottage	67.7%

*Source: own editing, N=95*

47.2% of telecottages being present on the Internet published its opening hours. 41.7% of them published its service and price list. 19.4% of them though published the list of services but without prices. The rest of them (38.9%) did not publish any kind of information about the services provided by the telecottage or its prices.

11.1% of telecottages being present on the Internet had created the foreign language versions of its website. 8.3% of them provide information both in English and German; and 2.8% of them had only a German version. To get a clear idea of the facts I have to tell that the majority of these websites are not independent ones, so foreign language options are not offered by the telecottage's website, but the website where this telecottage-related information were displayed.

81.8% of telecottage websites can be reached via the settlement's website. In 59.3% of the cases the telecottage was reachable through a separate "telecottage" menu, directly from the website of the settlement; and in 37% of the cases telecottage-related materials were reachable through a menu opening from the main page. In 3.7% of the cases I had to navigate through several menu items to reach the telecottage-related content. In 28.4% of the cases studied the settlement itself had a website, but the telecottage did not appear nor on it, either on an own website.

**Based on the results we can claim that telecottages have to increase their presence on the Internet.** 38.9% of the surveyed telecottages are present on the Internet and this rate is low. It is especially low if we consider that only 15.7% of them have an independent website, and the rest of them has only a partially owned one or appears on the Internet only by publishing some contact information - which is generally the address of the telecottage. **Telecottages play a largely limited role in raising the awareness about the importance of Internet appearance, as they do not utilize the advantages and possibilities provided by Internet presence.**

Telecottages being present on the internet can be found relatively easily and quickly. 64.9% of the surveyed telecottages could be found immediately and ranked quite high by searching for keywords "nameofthesettlement" and "teleház". Nevertheless, it is necessary to improve this ratio so that any of the telecottages shall be found with these keywords.

Information published by the telecottage is deficient. Only 52.8% of the telecottages being present on the Internet provided every piece of contact information; and information about opening hours and list of services are also deficient. Very few of the telecottages offer foreign language options. And this is important, since without foreign language versions the telecottage cannot turn into the global representative of the local community. There was only 1 telecottage that can be considered ideal from the analysis' point of view. The ideal telecottage has an independent website, publish every information about itself, and offers foreign language versions of this information. So both the structure and the content of telecottage websites have to be improved.

81.8% of telecottages being present on the Internet appeared on the website of the settlement, which can be considered a good ratio. It would be an ideal situation if every telecottage could get an opportunity for publishing their information on the website of the telecottage. However, in 28.4% of the cases studied the settlement itself had a website, and there was a telecottage in the settlement, but the telecottage did not appear in any way on its website. In my opinion telecottages should take advantage of the existing media, and in cooperation with the webmaster of the settlement's website they should come into the public with complete telecottage content.

### 3.7. Evaluation of the Hungarian telecottage movement

The telecottage movement is more than 10 years old, it celebrated its 10th anniversary in 2004. This period is long enough to make a comprehensive evaluation about the movement. Data available about telecottages, due to their quantity and quality, do not support the original purpose - individual evaluation of telecottages - because it requires certain data (*Weiss*, 1998) which currently are not available. Though efficiency assessment would be seasonable (*Gáspár*, 1999), its time hasn't come yet, because in many cases we can rely on mere assumptions that are not supported by empirical data. For a comprehensive analysis data should have been collected from the very beginning. The foregoing evaluations and data collections are not sufficient, because in many cases they measured the same, and did not pay attention to impact assessment, and they rather focused on the operation of the movement (number of computers, employees, etc.) The movement can operate without a comprehensive impact assessment, but as it is not supported by factual results, it is hard to protect it against the out world not knowing it<sup>16</sup>. According the above-mentioned the evaluation based on the existing data, experience, documents and literature can be conducted only for the whole of the telecottage movement.

The movement has been existed long enough to divide into epochs the operational phases of the telecottages according to several aspects. There are different possibilities for classification of these phases<sup>17</sup>. Based on the development goals and events I recommend the following classification:

1. **Age of foundation:** 1994-1997. The first telecottages had come into being, and HTA was established in 1995.
2. **Age of growth:** 1997-2005. The first tenders were announced. Telecottage were covered by the politics, and several ministries espouse the cause of telecottages. The 100th telecottages was established in 1999. This era was the age of strategy planning, this was the time when the first telecottage-strategies were born. The so-called eHungary Points had appeared and started to operate along the telecottages.
3. **Age of "path finding"** 2005: the spread of the movement has been halted, in 2006 the number of telecottages started to decrease. The telecottage movement has renewed, there were several changes in the leadership. The network of eHungary Points and telecottage movement has united. The strategies are not about qualitative development and strengthening the results anymore, but qualitative development.

According to another approach the life of the telecottage movement can be divided into 2 phases: qualitative growth and quantitative growth. **In my opinion the telecottage movement is**

---

<sup>16</sup> According to my personal experience many people have a negative attitude toward telecottages. I've heard many times the opinion that says telecottages do not provide any benefits, but eat up a huge amount of money. At the same time, based on my own experience I cannot unequivocally condemn this point of view and convince the people that they are wrong ad change their mind, since even I do not have appropriate information.

<sup>17</sup> If we consider telecottage as an innovation, then based on the innovation theories I would put telecottages into the phase of impregnation of the S-shaped innovation curve (*Dombi-Kollányi-Molnár*, 2007) .

**currently in the phase of qualitative development.** If we interpret the telecottage as a technology, then I put telecottages into the phase of slowing down and maturing (Bögel-Forgács, 2003). This means that telecottage movement has reached the limits of its growth, and at the same time is getting to melt into the everyday life, and is becoming part of it. According to certain data the growth of telecottage movement has stopped and it is stagnating. The following table provides some help to evaluate the movement:

**Table 8: Factors of evaluation of the telecottage movement**

Positive factors	Negative factors
ability to create resources	deficiencies of administration (mainly in the telecottages)
representation of interests of telecottages, improving lobbying	random, not conscious expansion - in accordance with tenders
creating partnerships and networks	sustainability is not solved - dependence on tenders and politics
creating telecottage professions (e.g.: IT-mentor)	dominance of local governments / government over civil control
creating the telecottage brand	negotiating position of telecottages are weakened by the fact that there are no researches verifying and supporting its usefulness with exact data
negotiating position can be strengthened by the number of the telecottages	personal contraposition within the movement

*Source: own editing*

Appreciation of the entire telecottage movement is defined by several positive and negative factors. One of these is the fact that the historical circumstances that induced the movement in Hungary no longer exist. That is the reason why the strategy built on quantitative growth is necessarily doomed to failure. At the same time, as I mentioned before, nowadays the telecottage movement focuses on qualitative improvement instead of quantitative growth, and this is reflected in the documentation of the movement, which means that telecottages and community access points still have reason for existence despite the fact that the circumstances have changed (*Ministry of Economics and Transport, 2007*).

The first strategies put emphasis primarily on expansion and consolidation of accomplishments (Gáspár, 2000, Gáspár, 2003a). Later the emphasis shifted towards qualitative development, services, trainings, digital content development, community development, coordination of network operation (*Telecottage Strategy 2007-2013, 2007*). The same change of approach reflects in the definition of "telecottage minimum". According to Kas-Larsson (2001) telecottage minimum consists of 2 topics: operational characteristics and basic services. Latter documents defined service, technical and operational minimum as well (*Telecottage minimum, 2005*), while recent strategies also mention the minimum of belonging to the network (*Telecottage Strategy 2007-2013, 2007*). So telecottage movement has expressly shifted the emphasis from quantitative changes to qualitative changes. From the standpoint of the movement's development this change of approach was inevitable. In my opinion without this change the telecottage movement would have been ceased in a few years or melted into a parallel institution.

So the judgement of telecottages is influenced by several factors. The assessment of eHungary Center on eHungary Points, made in 2007, bear a hand in the evaluation. And, since the telecottage network is part of the network of eHungary Points, this assessment can be used in the evaluation of telecottages. The network of eHungary Points altogether consists of 3053 community access points.

The main groups of the winners are mostly public institutions: public libraries, cultural institutions, local governments, hospitals, (public) foundations, and - the minority - business organizations. The programme had 2 main results. On the one hand, the infrastructure has been developed, and so-called community e-points have been created that was a completely unknown idea before. On the other hand, out of many supported organizations those active e-communities have been chosen where this service is used on a regular basis. The main points in the criticism of eHungary Points are the followings (*eHungary Centre, 2007*):

1. These eHungary Points are isolated and self-abandoned, which - after the subsidence of the enthusiasm, during its everyday operation - lead to the decrease of service level, and, in some cases, to the total stoppage of service providing. This problem also exists in the case of the telecottages. Since sustainability of telecottages are not solved, ebbing away of support funds in many cases lead to the deterioration of quality or the closure of the telecottage. In many cases the establishment of telecottages lacked any sort of conception, did not attempt to develop synergistic effects, and it was motivated only by the "others have one, let's have it, too" approach. This lead to subdivision and waste of resources.
2. Another problem was the lack of responsible experts in the ePoints. This also exists in the case of the telecottages, though they are able to attract and keep professionals with appropriate qualification, but there are not always enough professionals available. So telecottages are not always able to provide services at the required level.
3. The third problem is the lack of uniform governmental problem solving. The different ministries do not communicate with each other, there is no information-flow between them. This phenomenon had already existed at the initial phase of telecottage establishments, when several ministries announced tenders for telecottage, however there wasn't any connection between the different tenders.

The eHungary Programme are generally criticized for the fact that a small proportion of eHungary Points operate in an unorganized manner and provide just a very few services. The press and the governmental agencies deservedly judge the Programme for this. The final goal of the Programme was to create an intersectoral, multi-purpose provider system, namely a general community network service, and its economic, administrative and social impregnation. This goal has not been achieved. Though we can find some access point that operate as real service providers, their operation is almost exclusively depended on the activity and ambitions of one person being the engine of the local community. (*eHungary Centre, 2007*). This criticism also can be true for the telecottages. **Based on the results and experience we've got so far, we can claim that the purpose served by the vast majority of telecottages is not what was aimed at by the movement.** In many cases establishment of the telecottage was motivated by easy money-making (obtaining tender resources), there was no underlying concept or community purpose for providing the appropriate operation that serves the community. Further analyses are required to get information on the number of truly useful and the inactive, "alibi" telecottages, since currently available information are not sufficient to conduct such an analysis.

### 3.8. Telecottage vision

**The central issue of the entire telecottage movement is whether it has a future.** The answer given to this question depends on the accomplishments made so far. Only the successful operation of telecottages can keep the movement alive. Telecottage leader have different opinions about success. Half of them think that their telecottage has completed its mission, and the other half of them thinks they did not. A key indicator of a telecottage's success is the satisfaction of its leader, and his or her

opinion about their own personal success. Half of the telecottages leaders whom I interviewed said that their telecottages could only partly - if could at all - achieve their goal. According to the leaders these are the following fields where their goal hasn't been reached:

1. **Services:** distance working, exploitation of the telecottages.
2. **Local and wider communities:** creating an intellectual centre, involving the old and the romas, cooperating with local governments.
3. **Operation:** It is not sustainable in economic terms.

Great part of telecottages could not make any progress in the fields of distance working and distance education (*Kas-Larsson, 2001, Jehoda et al., 2003, Laczkó-Soltész, 2004*). Though it is due to the fact that in Hungary nor distance working, neither distance education are penetrated (*Balassa, 2008*). The exploitation of telecottages are not perfect either, since often its target audience does not take advantage of the possibilities provided by the telecottages. The main audience of telecottages is the youth, who use the computers primarily for playing games (*Jehoda et al., 2003, Laczkó-Soltész, 2004*). It is important how the leaders see the strengths and weaknesses of the telecottages. They generally mentioned the following strengths:

1. **Provide possibilities:** Internet, information, technology.
2. **Appropriate operation:** flexible opening hours, non-profit way of operation, adaptiveness.
3. **Services:** wide range of services, agility, reliability, cultural and social activities.
4. **Role in the local and the wider community:** holds together the community, volunteerism, openness, trust, contacting with civil organizations.
5. **Human resources supply:** workforce with appropriate qualification, founders with long term loyalty.

From the aspect of the future the most important thing is to be aware of the weaknesses. According to the leaders whom I interviewed the weaknesses of telecottages are the followings:

1. Infrastructure: outdated tools, deficiency of tools.
2. **Human resources supply:** constant fluctuation of employees and their quality.
3. **Financial problems:** insecure sources of income, small income from tenders, dependence on tenders.
4. Organization: lack of solidarity between the telecottages, contacting with top management.
5. **Role in the local and the wider community:** low level of exploitation, disinterest of the inhabitants, possibilities are unknown for the community, the acceptance is hard and slow.

Experts claim that the future of telecottages and further possibility for their development is clearly the networking (*Roman-Colle, 2002, Proenza, 2003, Phillip-Foote, 2007*). Practical experience also supports the fact that networking is a success factor (*Laczkó-Soltész, 2004*). In the future the significance of telecottages might be enhanced by e-governance becoming general. One of the most important tasks of PIAPs (Public Internet Access Points) is to educate the prospective users of e-governance services, which will be a long term process even in the most developed countries (*Jehoda et al., 2003*). From the aspect of the telecottages' future it is vital that not the information technology services themselves should be put forward among the services provided by the telecottages, but community services (like distance working, distance education, e-governance, etc.) built on them (*Fabulya, 2006*). So the future of telecottages is determined by so-called success factors. These are the factor whose presence can guarantee the success of a telecottages in the future as well.

1. **Networking** (*Roman–Colle, 2002, Proenza, 2003, Phillip–Foote, 2007*)
2. **Human resources:** with appropriate technological and management skills and knowledge (*Benjamin, 2001, Jensen, 2003, Laczkó–Soltész, 2004*)
3. **Demand-orientation:** serving the needs (*Jensen, 2003*)
4. **Service development:** not necessarily in technical, but in community sense, like processing information in a way that is appropriate for the community or providing local contents (*Benjamin, 2001, Phillip–Foote, 2007*)
5. **Internal relationships:** developing internal partnerships (*Benjamin, 2001*).
6. **Community participation:** participation of the community is vital to the success of the telecottage. It is important for the telecottage to reach the target audience (*Roman–Colle, 2002, Vietórisz, 2002*).

In case of telecottages we can claim that its future operation depends on fulfilling the success criteria in the present. Otherwise it is doomed to fail in the long run. **It is sure enough that the telecottage movement as a whole does have a future in the coming decade in case it is able to take advantage of the possibilities, and focuses every energy on creating a successful telecottage network.** Without successfully operating telecottage there is no successfully operating telecottage movement either. The future of the telecottage movement is a successfully operating telecottage network. **In case the number of existing and operating telecottages would significantly decrease (due to their unsuccessful operation) and only the most efficient one will remain, the telecottage movement will lose its position and importance.**

## 4. NEW AND NEWSY SCIENTIFIC RESULTS

I want to highlight the main results. In my opinion besides several minor results that I detailed above there are several other major and very important practical results as well. Here I would like to mention separately the point 1, since it basically questions the existence of that digital disparity decreasing effect, which is attributed to the telecottages by experts, and on which the whole telecottage movement was built.

1. Combining together the HCSO-TSTAR and HTA databases, using 47 independent variable, and conducting a discriminant analysis my director of studies and I have defined those variables by which we can significantly distinguish settlements with and without telecottages. We have defined 5 such variables: 1) aging index, 2) rate of unemployment 3) rate of children under 18, 4) rate of permanently unemployed people among the unemployed, 5) rate of operating non-profit organizations. So it has been stated that telecottages, contrarily to their original purpose, are not established in underprivileged, lagging settlements, but in settlements being in a more favourable demographic and economic conditions. I have classified the settlements into the appropriate HI categories. During my analysis it turned out that HI-value is not in direct connection with the appearance of the telecottage, so the HI development level of the settlement does not influence the existence of the telecottage. This result confirms the previous observation, and it means that telecottages are not established where they are really needed.
2. The distance from cities is in connection with the disappearance of telecottages. If the telecottage is located near a city (within 30 kilometres) it is more probable that it will cease, than in a settlement that is far from the city.
3. Based on the index created from the prices of telecottage's main services (computer and Internet usage, printing, photocopying) we can claim that there is not a direct link between telecottage prices and its way of operation (non-profit, for-profit, "mixed"). In most cases the pricing is not a result of conscious planning, but a random guessing, often with the aim of raising enough money to compensate the deficiency of the budget. Pricing is one of the basic topics of sustainability, since 1/3 of the revenues derive from the services.
4. After examining the skill and capabilities of the workforce in the surveyed telecottages I created a so-called knowledge index. With the help of this index defining the "human resources value" of the workforce I concluded that stability of the crew do not depend on the measure of remuneration. During personal interviews and surveys by questionnaires I observed what factors motivate the fairly well-educated workforce to stay - despite the fact that remuneration is slight or zero.
5. I drew up a simple, easy-to-use, uniform questionnaire to facilitate the examination and evaluation of telecottage websites. Based on the results I concluded that Internet presence of telecottages bears a lot of possibilities facilitating the telecottage movement itself and the broader purposes of rural development.

## 5. CONCLUSIONS AND SUGGESTIONS

### 5.1. System of tendering

According to my experience and opinion the system of tendering is not appropriate for establishing and operating telecottages. Several tenderer submitted its application merely to raise money for the timely development of IT infrastructure, and there was no intention of community development or any higher purpose. In other cases the telecottage operated as an alibi, a covering organization in order to gain further tender resources. Since 2/3 of the telecottages income derives from "tender money" and other subsidies, the system of tenders is the most important source of income for the telecottages. Current tenders are typically short-term possibilities, which, on the one hand, heavily depend on the actual governmental concepts, and on the other hand, create a serious dependence on tenders. **Regarding the length of tender periods I suggest to move from the short term to the middle distance: 3-5 years.** This way it would be easier for telecottages to make plans, and occasional personnel changes and instantaneous political happenings would have less influence on the possibilities of acquiring the subsidy. **Besides emphasis should be shifted from establishment to operation and job creation.** One of the biggest issues of telecottages is the fact that after its establishment there are very limited resources available, so most of the capacities are engaged in obtaining resources instead of actual operation. Financial acknowledgement of telecottage workers is quite moderate. If these institutions could provide employment for longer terms (3-5 years), then they would represent a much more attractive opportunity even for local people with appropriate qualification.

During reconstructing the system of tendering H1 hypothesis had to be taken into consideration. This hypothesis claims that it is not true that telecottages are established in the underprivileged, lagging settlements. In many cases successfully tendering settlements have much better economic and demographic conditions. In case of establishing a telecottage the situation of the settlement has to be seriously considered. It has to be taken into consideration that settlements being really down and out probably cannot submit a tender, since they do not have nor financial, neither human resources to write and to implement the tender. **Therefore I suggest starting centrally controlled, middle-distance programs in cumulatively underprivileged settlements - with appropriate resources.**

Establishment and operation of telecottages cannot be limited to simple infrastructure development. Implementation of tender should follow a system approach. It should not be just computer purchase, it should be a complex program that, of course, covers the infrastructure as well, but takes into consideration the local cultural, ethnical and economic features; and draw up a complete program not only for the establishment of the telecottage, but for its operation, plans and concepts afterwards. This also means that there would be a need for less but substantial tenders that can help to solve the issues of the employees, provide opportunity for promoting the telecottage, and gives enough time to ground the operation and integration of it. With the rise of the amount of subsidy, there would be a need for after-care and follow-up control which currently is at a minimum level or completely missing. **I suggest the after-care and follow-up control of tender resources.**

### 5.2. Human resources

Human resources are key factors of the telecottages' success. The quality of human resources of telecottages is generally appropriate, but their acknowledgement is poor. At the same time professionals working in telecottages are not primarily motivated by money, but the opportunity to gain new skills and capabilities. Different trainings help to keep volunteers and employees. (It is important

that these trainings should be free.) Besides it is also important to give them challenging duties (event organization, conducting programs and projects, providing knowledge and connections that can be useful in other walks of life), because they give an opportunity for development, so they are motivating. **I suggest distributing the trainings and educational systems of telecottages in a broader circle, since it is the motivating factor that can keep volunteers and professionals without any further expenditure.**

### **5.3. Economic conditions, Sustainability**

One of the most problematic and delicate issue of telecottages is economic sustainability. One part of it - system of tendering - has been already mentioned. 1/3 of the revenues of Hungarian telecottages derive from the services. According to foreign literature this ratio can be even 50% (*Roman-Colle, 2001b*). Increasing the proportion of service revenues could decrease the dependence on tenders. Here one keyword is partnership. HTA is trying to create and operate partnerships. Relationships and cooperations with local business organizations and entrepreneurs are very important. Telecottages can benefit from these relationships and not only in financial terms, but in kind as well. It is not necessary to connect with IT companies, and telecottages do not have to compete with such companies (as an IT service provider). This - in my opinion - would be harmful, because the task of a telecottage is to support the needy people, and not to compete with local private companies (in the fields of webdesign or internet access provider - though in some cases it is necessary, but, in my opinion, a telecottage cannot be a competitor of professional companies). A partnership could mean complementing the services of each other, promoting each other, even without financial return. Economic sustainability can be facilitated by governmental participation, but the government cannot act as an unconditional sponsor, just as a service purchaser. The government provide subsidy to the telecottages, and, in return, the telecottages provide services. **I suggest to strengthen and building up local and national partnerships as well, and to precisely elaborate the concept of service purchasing, since this field is still incondite, but bears great possibilities.**

One point of criticism against telecottages tells that these institutions are only visited by children who use the resources of telecottage for playing games. The existence of this phenomenon is supported by the literature and my own experience. However, according to the literature one of the main target groups of telecottages is children. They are still shapable, it is easy to raise their interest. It is an important niche for telecottages that children can play with each other in networks - this is what they cannot do at home, since home-network is still rare. **My suggestion for telecottages is to reckon children and young adults as their main target group, and do actual steps in this direction (in the fields of marketing and advertising).**

During the assessment of economic sustainability I observed that the pricing of telecottages is not built on economic bases, but in a random manner. **My suggestion for HTA to elaborate exact guidelines for telecottage pricing and to appropriately propagate them.** An appropriate price policy has a great significance in the evolution of service revenues.

### **5.4. Administration, Public Relations**

According to the literature and my own experience the records of telecottages is not appropriate and is deficient. In many cases they do not keep the most essential records (number of visitors, financial records). That is the reason why telecottage movement currently does not have any "weapon"

in their hands that they could protect their own standpoint with against the opponents of telecottages. But in the long run this situation is unmaintainable, and it undermines the credibility of the movement. It would be vital to the success of telecottages to keep up-to-date and precise records of each and every fields of their operation, even if the result would enhance the opponents' opinion. It is inadmissible to use governmental tools to support such projects that cannot account for utilization of tender resources. **My suggestion for HTA is to integrate and to thoroughly control the record keeping system, because the existence of appropriate data is vital to the evaluation of telecottage movement.**

I suggest to regularly conduct surveys based on uniform and so comparable records that would finally provide precise data about the impact and efficiency of telecottages. It is extremely important to widely publish the results. Current media coverage of telecottages is poor or even negative. If there are appropriate data measured in an exact manner, the movement could win sponsor for itself by publishing these data. The result could be widely circulated on the Internet (national and professional websites) on television and radio channels. **My suggestion is to widely propagate the results derived from the records via several media in order to present the telecottage movement to a broader audience.**

In my examinations I observed that Internet presence of telecottages is insufficient. Since telecottages are bearers of innovation, it is inadmissible to badly perform just in the field of Internet appearance. **My suggestion for HTA to elaborate a uniform Internet image for telecottages and the telecottage movement, and to create portals and websites with appropriate quality and informational content.** And this is not just about the communication with telecottage professionals, since the telecottage movement has an appropriate interface for it ([www.telehaz.hu](http://www.telehaz.hu), [www.telefalu.hu](http://www.telefalu.hu)), but this is also about the fact that there is need for information and contents available for the wide audience, and the communication of them is currently not appropriate.

## **5.5. Promotion, Demand Generation**

Foreign literature put a great emphasis on the fact that different IT programs were supported by strong governmental marketing and advertising activity. In Hungary we haven't seen such initiatives on the part of the government, or just at a minimum level. (Some companies and Internet access providers have made such actions.) In Hungary the establishment of information society was not accompanied by such an activity that would have shown what information society is, and why it is important to take part in it. **My suggestion for politicians to elaborate a detailed promotional campaign that would present the substance and importance of information society for those who - up until now - were left out of it.** This, of course, will not solve any of the problems, but at least those huge classes would even know something about information society, who hasn't heard of it so far, and this would put this concept into the common knowledge. Information society cannot be built if the vast majority of the population does not even know the concept and that why it is good and why it is necessary.

## LIST OF PUBLICATIONS

A, scientific articles

*published in Hungarian*

**Ferenc, Hohl** (2004): Teleházak: a falusi informatika központjai (Telecottages: centre of the rural informatics). *A falu, AGROINFORM, XIX (1) p. 85-97. ISSN 0237-4323*

**Ferenc, Hohl** (2006): A teleházak árképzésének és földrajzi elhelyezkedésének összefüggései (Correlation between pricing and location of telecottages). *Információs Társadalom 2006/2 p. 98-108 ISSN 1587-8694*

**Ferenc, Hohl** (2009): A teleházak humán erőforrás-ellátottsága és egyes gazdasági jellemzőik (Human resources supply and certain economic characteristics of telecottages). *Térség – Gazdaság – Társadalom (Region - Economy - Society). Collection from worHCSOops of Ph.D. students, 2009, p. 322-336. ISBN: 978 963 9742 38 3*

Dezső, Kovács – **Ferenc, Hohl** – Krisztián, Ritter – Edina, Szlanyinka (2009): Óbánya turizmusa. Egy baranyai aprófalú lehetőségei és korlátai turizmusának fejlesztésére (Tourism of Óbánya: possibilities and obstacles of developing tourism in a small village in Baranya). *Térség – Gazdaság – Társadalom (Region - Economy - Society). Collection from worHCSOops of Ph.D. students, 2009, p. 84-110. ISBN: 978 963 9742 38 3*

László, Kulcsár – **Ferenc, Hohl** – Csilla, Obádovics (2009): Teleházak: Remények és eredmények a vidékfejlesztésben (Telecottages: Hopes and Results in Rural Development) *Gazdaság és Társadalom, (1) p. 97-111.*

**Ferenc, Hohl** (2010): A teleházak gazdasági fenntarthatósága (Economic sustainability of telecottages). *Információs Társadalom, 2010/4. ISBN: 978 963 9742 38 3 Under publication.*

*published in English*

**Ferenc, Hohl** (2005): The role of telecottages in Hungary's rural development. *Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu XII. Kongres ANNALS of The Polish Association of Agricultural and Agribusiness Economists, Vol. VII, No. 6. p. 38-42. ISSN 1508-3535 22-24 September, 2005. Warsaw*

**Ferenc, Hohl** (2010): The role of staff in the operation of telecottages. *Gazdálkodás, 2010. Under publication.*

## **B, presentations held in scientific conferences published in conference proceedings**

### *in Hungarian*

**Ferenc, Hohl** (2004): A teleházak hatásának és hatékonyságának mérése (Assessing impact and efficiency of telecottages).

IX. Nemzetközi Agrárökonómiai Tudományos Napok (international agro-economic scientific days), Üzemtan és üzemgazdaság szekció (section of industrial management and business economics), Gyöngyös. Published on CD. ISBN 963 214 313 2 25-26 March, 2004.

**Ferenc, Hohl** (2004): A Teleházak, mint az információs kultúra hordozói és terjesztői. Teleházas honlapok elemzése (Telecottages as bearers and distributors of information culture - Analysis of telecottage websites). Within the European Union (WEU), international conference, section: Information technology in agro-management, Mosonmagyaróvár. Published on CD. ISBN 963 9364 40 1 6-7 May, 2004.

**Ferenc, Hohl** – Krisztián, Ritter (2004): Óbánya: a magyar Svájc. Turizmusmarketing, mint a településfejlesztés eszköze I (Óbánya, the Hungarian Switzerland: Tourism marketing as a tool of settlement development I.). International tourism marketing conference of Sopron. Published on CD. ISBN 963 9364 46 0 11-12 November, 2004.

**Ferenc, Hohl** (2005): A teleházak földrajzi elhelyezkedését befolyásoló tényezők (Factor influencing the geographical location of telecottages)  
"Verseny élesben" Európa-napi konferencia ("Real competition" Europe-Day conference), Mosonmagyaróvár. Published on CD. ISBN 963 9364 49 5 5-6 May, 2005.

**Ferenc, Hohl** (2005): Teleházak, mint a települések szolgáltató központjai (). University of Pécs, Faculty of Economics, Doctoral school of Regional Politics and Economy, yearbook of 2004-2005, vol. II., presentations of conference about environment protection, regional competitiveness, sustainable development, p. 273-281. ISSN 1588-5348 18-20 May, 2005. Pécs

### *in English*

**Ferenc, Hohl** (2004): Evaluating the impact and efficiency of telecottages: The Hungarian case study. IRSA Congress, WG6: Using a global medium to strengthen place-based networking? Appropriation of the internet in rural areas. Presentation summary. Norway, 25-30 July.

László, Kulcsár – **Ferenc, Hohl** – Csilla, Obádovics (2009): Telecottages: Hopes and Results in Rural Development. Economy, Society, Education – Session to be held in Hungarian. Szeged, 19-21 November, 2009. Conference proceedings under publication.

C, scientific publications (books, pieces of books, articles, research reports)

*research reports published in Hungarian*

Márton, Holczer – **Ferenc, Hohl** – Attila, Pái (2004): Az Európai Kutatási Térség és Magyarország helyzetének összehasonlító vizsgálata (Comparative analysis of the European Research Area's and Hungary's conditions). H.n. TÁRKI-IFM tanulmányok (TÁRKI-IFM studies). (lector: Dr. Gábor, Élő).

Mihály, Csotó – **Ferenc, Hohl** (2004): eAgrárium (e-Agraculture) Mezőgazdaság az információs társadalomban (Agriculture in information society). H.n. IHM.