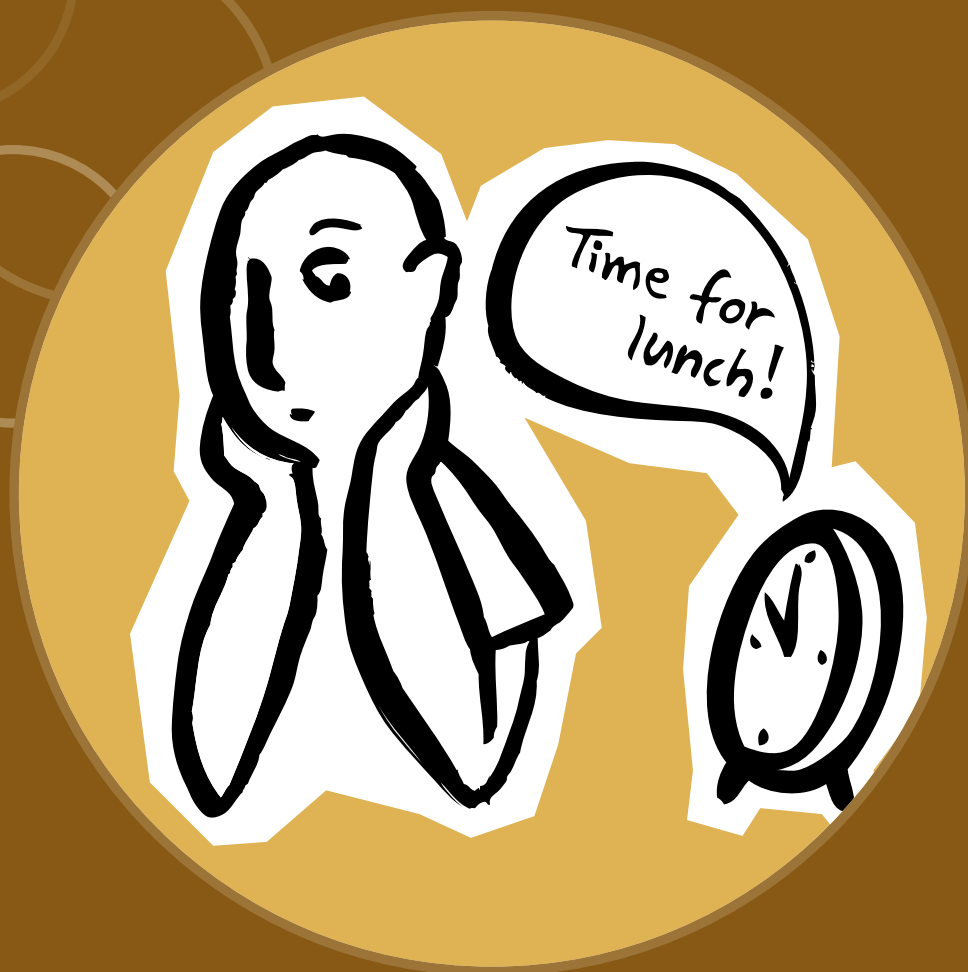


Profitable assistive devices

Cost-benefit assessment of assistive devices
for persons with psychiatric disabilities



Swedish Institute of
Assistive Technology

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Introduction

At the beginning of 2009, the Swedish Institute of Assistive Technology (SIAT) was commissioned by the Swedish Government to disseminate knowledge and develop assistive devices for persons with psychiatric disabilities. The initiative will run from 2009 to 2011.

- Increase, develop and improve information about and information ways for assistive devices for users, relatives and various responsible authorities
- Design and carry out training courses about assistive devices for various groups of personnel, including administrators and other officials who assess the need for support efforts in municipal and county councils
- Develop new assistive devices, services and methods for persons with psychiatric disabilities and promote the use of good products

One effective way of improving the quality of life for persons with mental disabilities is the assistive device. These are often ICT-based devices, such as PDAs. Assistive devices help people to plan and structure their everyday lives more effectively. Yet another device is the tactile stimulation quilt, which is used to facilitate sleep and relaxation.

Since assistive devices for persons with psychiatric disabilities are relatively new, there are many question marks. One question relates to the price of devices. Yet another involves the extent to which the user benefits from the use of devices.

Consequently within the bounds of the project there was a need to define the cost and the benefit of assistive devices. A cost-benefit analysis is an established method for meeting this need.

Therefore, we asked economist Åke Dahlberg, whose doctoral thesis dealt with cost-benefit analyses, for help. Åke Dahlberg was first commissioned to review the literature in the field as a basis for later execution of model calculations, not least for decision-makers.

The present document is a brief version of Åke Dahlberg's study.

Åke Dahlberg's report "Cost-benefit study of assistive devices for persons with mental disabilities" can be downloaded at www.hi.se/hjalpmedelifokus in Swedish.

Profitable assistive devices

The cost-benefit assessment shows that assistive devices for persons with psychiatric disabilities are clearly financially beneficial for users, the Government, municipalities, county councils and the economy as a whole.

The following are the results when certain useful devices are prescribed:

- The benefit is greater than the cost after 1.5 years
- One municipal invested SEK gives a return of SEK 3 after five years
- In five years, the Government earns SEK 23,000
- Once a person finds work, the cost of assistive devices is recovered in less than one year
- The major benefits assistive devices confer on the individual are increased independence, security and quality of life
- Assistive devices increase opportunities for retaining jobs and staying in the labour market
- The gain for users of assistive devices who find work is approximately SEK 72,000 a year
- There is a major need to continue studies of the effects of assistive devices for the target group

Mental disabilities can manifest themselves as:

- difficulties in planning, organizing and being able to create own routines
- difficulties in getting started and/or completing tasks
- difficulties in dealing with stress. When exposed to stress it takes longer than normal to recover composure
- memory problems; above all the active memory, which helps us to remember things that happened 30 seconds ago or a few minutes earlier, tends to be impaired
- sleep disorders, one either sleeps too much or too little or has an uneven sleep rhythm
- difficulties in obtaining an overall grasp of things. When there is something to be done, it is easy to get mired in detail and be unable to complete tasks.
- difficulties in functioning socially, knowing how to behave together with other people
- difficulties in interpreting sensory impressions such as vision, smell, hearing and touch

An experienced-based cost-benefit assessment

The cost-benefit assessment is based on information from existing studies and from interviews with persons with major experience in the way the assistive devices works.

- Previous studies, among them HumanTeknik (Human Technology) and KogniTek (Cognition and Technology) along with studies in associated fields
- Interviews with some 20 persons active in the field and 10 or so researchers concerning such issues as the probability of assistive devices being used after one year and the likelihood of finding a job

The literature review failed to show any scientifically formulated cost-benefit assessments of assistive devices for persons with psychiatric disabilities, control groups being used to assess the effects. The need for improved knowledge is great and the type of analyses of recovered quality-adjusted years of life being made within the health economy field should be performed for assistive devices for persons with psychiatric disabilities.

Existing studies referred to include (in Swedish only):

- Kostnader och effekter vid förskrivning av rollatorer (Persson et al., 2007)
- Teknik för personer med demens – en utvärderingsstudie av teknikintervention för personer med demenssjukdom och deras närstående (Alwin et al., 2008)
- Utvärdering av delprojektet KogniTek i Uppsala (Lindstedt, 2008)

- Projektet HumanTeknik i Karlstad (Grönberg Eskel, 2003 and 2005)
- Kognitiva hjälpmedel – nationell kartläggning av hjälpmedelsförsörjningen för personer med kognitiva funktionsnedsättningar (Swedish Institute of Assistive Technology, 2008)

A total of around 20 persons were interviewed, including various officials within private and public sectors, primarily assistive technology consultants, occupational therapists, personal representatives and persons working for assistive technology companies. Questions were asked about the availability of assistive devices, the cost of assistive devices and support initiatives, the significance of assistive devices for users' quality of life, including options for being able to get or keep a job, and the effects of assistive devices on support needs from personnel and relatives.

Effects

Effects which could be expected are that the day-to-day tasks become easier, which can lead to improved quality of life for users and a reduced need for help from society and relatives. The use of assistive devices can also result in that individuals start to study, find employment and retain or increase the hours of employment that they have.

Most of the people interviewed estimated the total time required for the needed assessment, introduction and follow-up, to be between 10 and 20 hours per future user. For an assistive device to function well, even longer time may be needed, up to 40 hours, according to a couple of the interviewees.

It is estimated that it is extremely likely (approx. 70–90 %) that users who have learned to utilize an assistive device will still be using it one year later and even five years later if the need remains. In certain cases, it may be enough for users to use an assistive device for about six months in order to structure their days.

Based on the data gathered, cost-benefit assessments have been made for the economy as a whole, for the municipal, the county council and central government sectors and for the users.

One tenth of the target group have assistive devices

Most of the people interviewed are of the opinion that only one tenth of the target group have assistive devices. This assessment is in line with other assessments (e.g. Folkesson, 2009).

The most common assistive devices according to the people interviewed are PDAs and smartphones (Handi, Handifon), tactile stimulation quilt, weekly agendas (often quite simple on paper or a whiteboard), Timstock (Electronic Hourglass), KomlhågKlocka (Memory Message), the MEMOdayplanner (24-hour whiteboard) and mobile phones.

In the nationwide survey of the provision of assistive devices carried out by the Swedish Institute of Assistive Technology in 2007, the most common assistive devices were the Timstock (Electronic Hourglasses) followed by the Handi and the MEMOdayplanner (24-hour whiteboard). The KomlhågKlocka (Memory Message) was also common.

More assistive devices are presented with pictures in the brochure Var-Dags-Hjälpl!, which can be downloaded at www.hi.se in Swedish.

Assessment of costs and benefits

Costs

The economic assessments are based partly on a Handi at a cost to society of SEK 18,800 and partly on a tactile stimulation quilt combined with a memory aid of equal cost. 30 hours have been allowed for the time assumed to be required for needs assessment, prescription, trial and follow-up, equivalent to a socio-economic cost of SEK 11,300. Thus the total cost of assistive devices is SEK 30,100.

Cost-benefit assessment for the whole public economy	
Costs:	
Assistive devices corresponding to a Handi or a tactile stimulation quilt and a memory aid	SEK 18,800
Time for needs assessment, prescription, trial and follow-up, 30 hours	SEK 11,300
Total cost	SEK 30,100



“The best
assistive device for
me is the medicine
alarm dosette.”

ERIKA

Benefits

The most tangible benefit in a socio-economic assessment is the gradually decreasing need for support initiatives by municipal and county councils, but also by relatives and other closely related persons. The beneficial effects of assistive devices on each person's circumstances in the labour market are also extremely important. In addition, assistive devices have other effects which are more difficult to quantify yet can affect a person's life in general.

The assumption made is that assistive devices can result in a reduced need for support by municipal and county councils of one hour per week. We have also assumed that the support work of relatives is reduced by one hour a week. The socio-economic value of these items is estimated to be SEK 19,600 a year.

Cost-benefit assessment for the whole public economy	
Benefit:	
Reduced need for support by municipal and county councils, 1 hour a week	SEK 15,600
Reduced need for support by relatives and closely related persons, 1 hour a week	SEK 4,000
Total benefit	SEK 19,600

Benefit greater than cost after 1.5 years

Taking into account these two items, it is apparent that the socio-economic cost of assistive devices after eighteen months is offset by real cost savings for municipal and county councils and a reduced need for support from closely related persons and relatives.

Occupational effects of assistive devices

- Giving 1,000 persons assistive devices creates a total of 13 full-time jobs in the open market and 28 with salary subsidies
- Keeping one's job and remaining in the labour market with assistive devices
- Costs for assistive devices are recovered in less than one year

When trying to judge how an assistive device can be a support when trying to find an occupation the picture becomes more complex. Whether one succeeds in entering the labour market very much depends on how severe the disability is.

For people who already have a job, assistive devices may increase their chances of keeping their jobs and remaining in the labour market. Here we assume that the probability is 0.02. This means that every fiftieth person among the group of people with jobs is affected; this figure is assumed to be the same in the general population, i.e. 36 per cent of all persons with disabilities. It has also been assumed that half of the people in employment have jobs with salary contributions or other subsidies.

A major share (64 percent) of persons with psychiatric disabilities has no work. It has been assumed that, for these people, the probability of getting a job with a salary contribution etc. is 0.05 and a job on the open labour market is 0.02. Thus if 1,000 persons in the target group receive assistive devices, conditions for increasing occupation correspond to 13 full-time jobs in the open labour market and 28 with salary subsidies.

For the average user this results in additional occupation with an estimated production value of SEK 13,200 a year.

Adding the previously calculated annual cost savings of SEK 19,600 to the value of the production boost of SEK 13,200 gives an annual socio-economic addition of SEK 32,800. Since the cost of assistive devices is estimated at SEK 30,100, this means that this cost is recovered in less than one year.



“The assistive device helps me to structure my life better.”

SARA

Cost-benefit assessment for the whole public economy	
Benefit:	
Reduced need for support by municipal and county councils, 1 hour a week	SEK 15,600
Reduced need for support by relatives and closely related persons, 1 hour a week	SEK 4,000
Increased employment and production	SEK 13,200
Total	SEK 32,800

Five-year estimates

- The net profit for the government is SEK 23,000
- One municipal invested SEK gives a return of SEK 3 after five years
- The major benefits assistive devices confer on the individual are increased independence, security and quality of life
- The gain for users of assistive devices who find work is approximately SEK 72,000 a year

Longer term estimates give even more favourable results. Over a five-year period profitability is extremely high. There is a quotient of 5 between benefits and costs for the whole public economy. At both municipal and county levels, there is a quotient of approx. 3 between benefits and costs over a five-year time horizon. In other words, here too the profitability appears to be extremely high.

For the Government, the effects of using assistive devices include reduced benefit payments i.e. sick pay, housing subsidies etc. Government earnings are estimated at SEK 5,200 per year. There is no data for estimated equivalent costs, but these are only marginal in amount. Thus the final outcome over five years comes to Government earnings of approx. SEK 23,000.

The major benefits assistive devices can give the individual are increased independence, security and quality of life. The direct economic gains are closely associated with opportunities to get or keep a job, whether on the open labour market or with a salary subsidy. This gain has been estimated at an average of SEK 2,900 a year (having allowed for taxes and social benefits). This amount may seem modest but it involves an expected value from increased employment for an average user. On the other hand, this figure will be considerably higher for users who find work.

The table below lists the economic estimates.

Economic consequences of assistive devices for persons with psychiatric disabilities

	Benefit-cost quotient	Difference between benefits and costs
5 years		
The whole public economy	5	SEK 116,000
Government	-	SEK 23,000
Municipal councils	3	SEK 33,000
County councils	3	SEK 15,000
Average users	-	SEK 13,000
Users who find work	-	SEK 320,000



“The Handi gives me an overview of my day and reminds me of what I need to do. Having an overview makes me feel secure.”

IDA

Various assumptions about the effects may be made to illustrate the sensitivity of the results. For example, assume that there are no effects on employment at all. The benefit-cost quotient is then reduced from 5 to 3 over five years. Assuming the total absence of savings on support initiatives by the municipality, county councils and closely related persons, the quotient is reduced from 5 to 2.5 over five years.

Other effects

Besides the effects described, one may assume that assistive devices reduce the burden on the national health system i.e. care needs, fewer visits to psychiatric emergency clinics and the reduced need for medication. Authorities, doctors, dentists etc. will also find it easier to arrange their visiting times. Yet another likely effect is that users will be able to live in their own homes to a greater extent instead of in special residences, which will reduce costs. Assistive devices may also encourage users to commence or continue training or educational courses, which in the long term may result in employment.

Continued studies

Of major significance are the beneficial effects of assistive devices for user's day-to-day activity like increased independence, security and quality of life. This type of effect is of great importance in an overall cost-benefit analysis and together with the other effects of assistive devices for the target group should be the object of research-based studies. The Government should allocate funds for such studies.

Profitable assistive devices

Cost-benefit assessment of assistive devices for persons with psychiatric disabilities

This brief version of the cost-benefit assessment Åke Dahlberg did in spring 2010 commissioned by the project "Assistive Technology in Focus – for persons with psychiatric disabilities" can be downloaded at www.hi.se/en.

Assistive Technology in Focus is a governmental assignment that runs from 2009 until 2011. The vision is that access to assistive devices should be as good for everyone, whatever disability.

The Swedish Institute of Assistive Technology (SIAT) is a national resource centre on assistive technology and accessibility for persons with disabilities.

SIAT works for full participation and equality for persons with disabilities by ensuring access to high-quality assistive technology, an effective provision of assistive devices and an accessible environment.

The Swedish Institute of Assistive Technology is run by the Ministry of Health and Social Affairs and the Swedish Association of Local Authorities and Regions (SALAR).



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