Current practice in mobile work
Insights from European case studies

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Agenda

= Introduction
= Mobile work – how is it working?
= Key success factors
= Discussion
This workshop deals with the current practice of mobile work and its actual enablers and barriers.

From the workshop announcement

= The objective of this workshop is to bring together practitioners, researchers, solution developers and policy makers to explore the potential for innovation and change in supporting work practices [...]..

= In particular we will discuss current practice and future scenarios for new ways of working, address important societal and organizational challenges in creating systems change [...].
The current practice assessment has two main objectives: stay real and derive insights from the field.

### Main objectives

**= Stay real**
- Keep the EC-research efforts realistic and with two feet on the ground – what’s the state of the art compared to all the visions?
- Where and why are mobile work environments to be found?
- Is it really so novel, is the development evolutionary or revolutionary?
- Which organizations are waiting for what type of guidelines

**= Derive insights**
- into potential technical, organisational, process, psychological, economic enablers and barriers

**Update visions:** better understand the future development and drivers from the field.
Mobile work environments free work processes from a fixed location.

Mobile work environments – a working definition

= We are concerned with mobile work, when information and communication technologies support work processes to be carried out independently from a fixed location.

= We are looking at the environment of mobile work in terms of:
  • technologies used
  • process, interface and human interaction design
  • organisation, empowerment and skills
  • implementation efforts
  • performance / value created
### Questions

- **Do you think you are a mobile worker?**
  - [ ] no
  - [ ] yes

- **How much time do you work at your employer’s premises?**
  - [ ] >50%
  - [ ] <50%

- **5 years ago - how much time did you work at your employer’s premises?**
  - [ ] >50%
  - [ ] <50%

- **How have your work processes changed?**
  - [ ] radical
  - [ ] marginal

- **Do you appreciate that your work has become mobile?**
  - [ ] no
  - [ ] yes

- **Who reaps the benefits from mobile work?**
  - [ ] you
  - [ ] both
  - [ ] employer
  - [ ] no benefits
Agenda

- Introduction
- Mobile work – how is it working?
- Key success factors
- Discussion
When assessing the various cases we focused on eight key dimensions.

<table>
<thead>
<tr>
<th>Core benchmarking data</th>
<th>Background information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Technology progressiveness</td>
<td>5 Social impacts</td>
</tr>
<tr>
<td>2 Mobile Value Proposition</td>
<td>6 Change efforts in implementation process</td>
</tr>
<tr>
<td>3 Mobility Concept</td>
<td>7 Enablers / barriers</td>
</tr>
<tr>
<td>4 Size</td>
<td>8 Near term developments</td>
</tr>
</tbody>
</table>
Core benchmarking data determines the positioning of the cases in the technology – value matrix.

Technology – Value Matrix

- **State of the art implementation of mobile technology generating sustainable advantage through mobile value creation.**
- **Sustain best in class position**

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
Agenda

= Introduction

= Mobile work – how is it working?
  • Customs Agency (NL)
  • Frimley Park Hospital (UK)
  • Wired Up Community (UK)
  • Flight Passenger Check-in, Finnair (FI)
  • Mobile Sales Force (CH)

= Key success factors

= Discussion
The Dutch customs organisation implements a mobile field force application for 500 controllers in the field.

**Customs agency (NL)**

<table>
<thead>
<tr>
<th>Company background</th>
<th>Mobile Work Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch Customs: four districts in the Netherlands</td>
<td>Mobile work force</td>
</tr>
<tr>
<td>Control of import and export of goods</td>
<td>Currently 15 controllers equipped and on central dispatching seat</td>
</tr>
<tr>
<td>On the road and at client premises</td>
<td>Future target: 500 controllers</td>
</tr>
<tr>
<td>Planned and ad hoc assignments, by single controllers or in pairs</td>
<td>Planned assignments generated by planning systems, a hoc assignments by control room</td>
</tr>
<tr>
<td>Mobile teams (“physical control”): in total 1700 personnel</td>
<td>Assignments send via GPRS to PDA and tablets of controllers.</td>
</tr>
<tr>
<td>Experiment with about a hundred controllers</td>
<td>Controllers use PDA or Tablet, depending on setting</td>
</tr>
<tr>
<td></td>
<td>Controllers complete report on PDA / Tablet and send results back</td>
</tr>
</tbody>
</table>
The customs agency achieved operational efficiency gains and image improvements.

### Customs agency (NL)

<table>
<thead>
<tr>
<th>Major benefits</th>
<th>Problems / barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved information availability for controllers</td>
<td>Sometimes slow data-communication over the existing network</td>
</tr>
<tr>
<td>Higher flexibility of task assignment</td>
<td>Duration of batteries</td>
</tr>
<tr>
<td>Faster processing of results of controls</td>
<td>Access to intranet, i.e. connection has to be initiated repeatedly because of</td>
</tr>
<tr>
<td>Goods can be cleared much faster for the client</td>
<td>Ergonomic conditions</td>
</tr>
<tr>
<td>Less waiting time for assignments at office</td>
<td>Task execution more standardized, autonomy lowered</td>
</tr>
<tr>
<td>Positive reactions by controllers</td>
<td></td>
</tr>
<tr>
<td>- The tools were very user-friendly</td>
<td></td>
</tr>
<tr>
<td>- Data only be entered once</td>
<td></td>
</tr>
<tr>
<td>- Information could be asked and received during the trip</td>
<td></td>
</tr>
<tr>
<td>Improved image and employee motivation</td>
<td></td>
</tr>
</tbody>
</table>
With reasonably small investment in robust technology the case shows quite positive value impact.

### Customs agency (NL) - Case assessment

<table>
<thead>
<tr>
<th></th>
<th>Technology</th>
<th>Mobile Value Proposition</th>
<th>Mobility Concept</th>
<th>Size</th>
</tr>
</thead>
</table>
| 1 | - Ease of use is high and the system runs reliably  
   - No use of location based information  
   - Not fully integrated in SW environments  
   - Proven technology solution from ADAC (Ger) | - Improved process flow and information availability in the field  
   - Better resource allocation and planning  
   - Increased employee motivation | - Theoretically worldwide, wherever GPRS coverage is available  
   - Usage in geographic districts in NL | - Number of mobile workers: 15 in the trial today (500 in future)  
   - Trial investment: < 50,000 € |

#### Technology Assessment
- Limited: (1) (2) (3) (4) Leading: (5)

#### Mobile Value Proposition Assessment
- Limited: (1) (2) (3) (4) Leading: (5)

#### Mobility Concept Assessment
- Local: (1)  
  - In work area: (2)  
  - On site: (3)  
  - Several sites: (4)  
  - Unlimited: (5)

#### Size Assessment
- < 50K €: (1)  
  - 51-100K €: (2)  
  - 101-500K €: (3)  
  - 501K-1.M €: (4)  
  - < 1M €: (5)
Further SW and data integration as well as seamless up scaling would be important to improve this case.

Technology – Value Matrix

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
The early involvement of users in the implementation process is seen as an important success factor.

## Lessons learned

### Technical:
- Use different equivalent devices for different circumstances

### Organizational:
- Development is in line with the general automation trend in the organization.
- Organizational processes and actual work practices were not strongly changed, although this was technically possible. Therefore introduction of the new devices was quite easily done.
- Due to earlier experiences, the project was set up with extensive organization, drive by project team and participative development and evaluation.
- Use of very user friendly devices and applications made acceptance quite strong.
- Success(-until-now) probably also due to copying an existing approach (from ANWB)
Agenda

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= Mobile work – how is it working?
  • Customs Agency (NL)
  • Frimley Park Hospital (UK)
  • Wired Up Community (UK)
  • Flight Passenger Check-in, Finnair (FI)
  • Mobile Sales Force (CH)

= Key success factors

= Discussion
Tablet PCs implemented as mobile access to patient records, digital X-rays and other medical data.

Frimley Park Hospital (UK)

<table>
<thead>
<tr>
<th>Company background</th>
<th>Mobile Work Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ National Health Service Trust (ie public health, free at source) hospital serving the Surrey area in south east of the UK</td>
<td></td>
</tr>
<tr>
<td>▪ Serves a catchment population of 365,000</td>
<td></td>
</tr>
<tr>
<td>▪ 700-beds, staff of around 2,500 and an annual turnover of almost £100 million</td>
<td></td>
</tr>
<tr>
<td>▪ 75,000 patients per year</td>
<td></td>
</tr>
<tr>
<td>▪ Opened in 1974, with a major expansion programme in 1992 at a cost of over £37 million</td>
<td></td>
</tr>
<tr>
<td>▪ It provides a full range of district general hospital services for the population of North East Hampshire and West Surrey.</td>
<td></td>
</tr>
<tr>
<td>▪ Access to data for medical staff whilst mobile (both doctors and nursing staff)</td>
<td></td>
</tr>
<tr>
<td>▪ ~60 devices located at nurses station in 12 wards, used as required by some 200 doctors and nurses</td>
<td></td>
</tr>
<tr>
<td>▪ WLAN: 55 Cisco wireless access points</td>
<td></td>
</tr>
<tr>
<td>▪ Personal equipment: Tablet PCs (SUMO ST 368 Embedded XP Digital Tablet), personal iPAQ and PDAs</td>
<td></td>
</tr>
<tr>
<td>▪ Access to applications:</td>
<td></td>
</tr>
<tr>
<td>▪ Digital X-Ray images</td>
<td></td>
</tr>
<tr>
<td>▪ Pharmacy</td>
<td></td>
</tr>
<tr>
<td>▪ Patient database</td>
<td></td>
</tr>
<tr>
<td>▪ MS Office tools</td>
<td></td>
</tr>
</tbody>
</table>
Mobile solution as part of much wider improvement programme.

Frimley Park Hospital (UK)

<table>
<thead>
<tr>
<th>Major benefits</th>
<th>Problems / barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance to regulative requirements (NHS Care Records Service)</td>
<td>Business case - took 18months to resolve</td>
</tr>
<tr>
<td>Earlier release of patients - beds released 5 hours earlier</td>
<td>Security - took 7 months to resolve</td>
</tr>
<tr>
<td>Improved reporting procedures and access to data (conservative estimate, time</td>
<td>Skills - both in terms of IT and in terms of training staff</td>
</tr>
<tr>
<td>saving: 1 minute per patient for 75,000 patients =&gt; 20 person weeks)</td>
<td>Cultural factors - reporting of risks</td>
</tr>
<tr>
<td>Motivated workforce – seen that they are being provided with top quality IT</td>
<td>Weight and battery issues (resolved by process and modifications to the kit)</td>
</tr>
<tr>
<td>and that it works</td>
<td>Team absorb personality of consultant</td>
</tr>
<tr>
<td>More streamlined integrated process, linking all agencies involved with the</td>
<td>View that there will always be people that do not embrace the new technology</td>
</tr>
<tr>
<td>patient.</td>
<td>Complete independence of IT networks: hospital, police, social services and fire</td>
</tr>
<tr>
<td>Linking commercial benefit with both medical staff and patient benefit</td>
<td>brigade</td>
</tr>
<tr>
<td></td>
<td>It may be more difficult to replicate this success in other hospitals</td>
</tr>
</tbody>
</table>
Mobile technology costs offset by update to Digital X-ray process.

Frimley Park Hospital (UK): Case assessment

<table>
<thead>
<tr>
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<th>Technology</th>
<th>Mobile Value Proposition</th>
<th>Mobility Concept</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fully integrated software environment</td>
<td>Indirect collateral benefits - better bed usage, patient release earlier with better process</td>
<td>Use of system in 12 wards but onsite only (WLAN coverage)</td>
<td>200 staff using the system in this hospital, using 60 tablets.</td>
</tr>
<tr>
<td></td>
<td>Speech recognition for radiologists</td>
<td>Time saved in accessing data and information</td>
<td>Potential to integrate with ambulance service and district nursing</td>
<td>CAPEX: 101K-500K €</td>
</tr>
<tr>
<td></td>
<td>Use of location specific information</td>
<td>Early adopters, the IT supports stringent government requirements for reporting</td>
<td>Access to records anywhere any time</td>
<td>Fully scaleable</td>
</tr>
<tr>
<td></td>
<td>No personalization</td>
<td></td>
<td>Integrated approach to health care, not a one-off</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reliable, easy to use</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Limited:** (1) < 50K € (2) 51-100K € (3) 101-500K€ (4) 501K-1.M € (5) < 1M€
- **Leading:** (1) (2) (3) (4) (5)

- **Local:** (1)
- **In Work Area:** (2)
- **On Site:** (3)
- **Several Sites:** (4)
- **Unlimited:** (5)
Focus clearly on patient care - not short term improvements but an ongoing process.

Technology – Value Matrix

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
The success of the project was down to stakeholder involvement, CEO support, a highly skilled IT team and clear patient focus.

Lessons learned

= Technical:
  • Network design - in house - cost effective and knowledge maintained
  • Security protocols - answers had to be found during the project (symptomatic of early adopter)
  • Partnership with manufacturers and service providers
  • IT team training required

= Process:
  • Process re-design for X-ray diagnosis and reporting, and for patient release - to benefit of patients and medical staff

= Organisational:
  • Stakeholder management crucial - early involvement of mobile workers
  • The pilot study was very valuable to iron out problems
  • Don’t worry too much about dissenters - the benefits will carry the implementation
  • Not a bureaucratic approach - very open culture and participative approach
  • It helps to have a skilled IT team on site rather than relying on outsourced skills
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  • Wired Up Community (UK)
    • Flight Passenger Check-in, Finnair (FI)
    • Mobile Sales Force (CH)

= Key success factors

= Discussion
CyberMoor implements broadband access in an extremely remote area of Alston.

Alston CyberMoor – Wired Up Community (UK)

<table>
<thead>
<tr>
<th>CyberMoor project’s background</th>
<th>Mobile Work Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Alston is an extremely remote town</td>
<td>▪ Teleworking enables specialists to live in an attractive area and a beautiful landscape and simultaneously remain professionally active</td>
</tr>
<tr>
<td>▪ company limited by guarantee founded specifically for the project and owned by its subscribers (each new subscriber becomes a shareholder)</td>
<td>▪ On-line shopping</td>
</tr>
<tr>
<td>▪ CyberMoor provides a high-speed broadband service</td>
<td>▪ E-tourism services</td>
</tr>
<tr>
<td>▪ offers a range of on-line services to the residents of Alston Moor parish</td>
<td>▪ E-marketplace (for everyone)</td>
</tr>
<tr>
<td>▪ It was initially funded from a grant</td>
<td>▪ E-learning</td>
</tr>
<tr>
<td>▪ Now it’s self-sustainable - generates GBP 150,000 a year</td>
<td>▪ E-marketing</td>
</tr>
<tr>
<td>▪ More info: <a href="http://www.cybermoor.org">www.cybermoor.org</a> or <a href="http://www.a-bard.org">www.a-bard.org</a></td>
<td></td>
</tr>
</tbody>
</table>
Digital inclusion of the community and businesses followed by further benefits.

### Alston CyberMoor – Wired Up Community (UK)

<table>
<thead>
<tr>
<th><strong>Major benefits</strong></th>
<th><strong>Problems / barriers</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Encouraging lifelong learning / home-school links, improving citizens’ ICT skills</td>
<td>Early underestimation of the support and project management requirements</td>
</tr>
<tr>
<td>Enabling (broader) take up of e-government services</td>
<td>Lack of resilience/redundancy on backhaul</td>
</tr>
<tr>
<td>Facilitating economic regeneration (through improved ICT skills / broadband, encouraging and leveraging incoming business)</td>
<td>Difficulty in formalising working SLAs with suppliers</td>
</tr>
<tr>
<td>Improving social inclusion through community website</td>
<td>Reliability of wireless equipment</td>
</tr>
<tr>
<td>increase of real estate prices (25%) £25M over the area</td>
<td>Managing expectations amongst users</td>
</tr>
<tr>
<td>Cybermoor is the broadband capital of Britain - 30% of homes on broadband – national average 10%.</td>
<td></td>
</tr>
</tbody>
</table>
Reasonable investment, self-government and community-based solutions of great positive impact.

### Alston CyberMoor: Case assessment

<table>
<thead>
<tr>
<th></th>
<th>Technology</th>
<th>Mobile Value Proposition</th>
<th>Mobility Concept</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WiFi-based, proven technology, scalable</td>
<td>De-localisation and inclusion of the community</td>
<td>Network physical coverage is limited to Alston area, however – due to WiFi-based access – connectivity is unlimited</td>
<td>400 local connections + backbone + secondary level distribution points (&lt;500,000 €)</td>
</tr>
<tr>
<td></td>
<td>After initial installation problems, currently the system runs reliably</td>
<td>Much better attractiveness and opportunities for businesses (incoming and local) development</td>
<td>Impact is theoretically unlimited since businesses may operate on a world-wide scale</td>
<td>Current maintenance ~ 20.30 thousand € (uprading servers, replacing antennas)</td>
</tr>
<tr>
<td></td>
<td>Maintenance done mainly locally</td>
<td>Innovative business concepts have arisen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Technology**
  - WiFi-based, proven technology, scalable
  - After initial installation problems, currently the system runs reliably
  - Maintenance done mainly locally

- **Mobile Value Proposition**
  - De-localisation and inclusion of the community
  - Much better attractiveness and opportunities for businesses (incoming and local) development
  - Innovative business concepts have arisen

- **Mobility Concept**
  - Network physical coverage is limited to Alston area, however – due to WiFi-based access – connectivity is unlimited
  - Impact is theoretically unlimited since businesses may operate on a world-wide scale

- **Size**
  - 400 local connections + backbone + secondary level distribution points (<500,000 €)
  - Current maintenance ~ 20.30 thousand € (uprading servers, replacing antennas)

- **Impact**
  - Network physical coverage is limited to Alston area, however – due to WiFi-based access – connectivity is unlimited
  - Impact is theoretically unlimited since businesses may operate on a world-wide scale

- **Maintenance**
  - Current maintenance ~ 20.30 thousand € (uprading servers, replacing antennas)

- **Costs**
  - 400 local connections + backbone + secondary level distribution points (<500,000 €)
  - Current maintenance ~ 20.30 thousand € (uprading servers, replacing antennas)

### In Innovation in Mobile Work - Rome, 2005

T. Brodt

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Innovation and impact will increase as businesses and citizens „mature” in ICT dimension.

Technology – Value Matrix

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.

- Technology upgrades (towards greater transmission speeds, flexibility and robustness),
- Introduction of AMI solutions
- Improvement of ICT skills of local businesses/citizens will contribute to more innovative uses of the network and support creation of mobile services
- Technology upgrades (towards greater transmission speeds, flexibility and robustness),
- Introduction of AMI solutions
- Improvement of ICT skills of local businesses/citizens will contribute to more innovative uses of the network and support creation of mobile services

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
Lessons learned

= Technical:
  • In spite of local character of the implementation, the planning should be done professionally (no resilience was initially built into the system which delayed the launch)
  • Radio technology is not 100% reliable thus fixed back-up line was necessary

= Organizational:
  • It is very important to devote adequate resources for managing suppliers and the project execution
  • Formalising SLAs with suppliers was difficult but necessary
  • Adequate and continuous marketing was necessary to launch the service at a proper scale (among ICT-inexperienced users)
  • The marketing has been backed by dedicated training offer
  • Self-governing and self-financing organisation has proved to be effective
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  • Mobile Sales Force (CH)
= Key success factors
= Discussion
SMS-based check in at Finnair reaches over 90% of passengers.

<table>
<thead>
<tr>
<th>Company background</th>
</tr>
</thead>
<tbody>
<tr>
<td>The leading Finnish airline company</td>
</tr>
<tr>
<td>8,15 million passengers in 2004</td>
</tr>
<tr>
<td>Major hubs Helsinki and Arlanda, Sweden</td>
</tr>
<tr>
<td>Aims to be amongst the leading appliers of eBusiness practices in airline industry</td>
</tr>
<tr>
<td>The ticket writing (eTicket) and the flight check-in and boarding work processes updated first</td>
</tr>
<tr>
<td>For background information see <a href="http://www.finnair.fi">www.finnair.fi</a> and <a href="http://www.bookit.net">www.bookit.net</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mobile Customer Service Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS based solution to mobilize the check-in and boarding work processes</td>
</tr>
<tr>
<td>Passengers participate in the processes</td>
</tr>
<tr>
<td>The new processes are implemented by Finnair in 2004 though the existing paper based manual processes are still available</td>
</tr>
<tr>
<td>Special technology from a software company BookIT to make automated two way dialog over GSM Short Message Service applied</td>
</tr>
<tr>
<td>Technologically the solution reaches over 90 percent of the passengers</td>
</tr>
<tr>
<td>Very positive feedback, majority of passengers reaching SMS suggested check-in, do it through SMS</td>
</tr>
</tbody>
</table>
The solution allows passenger check-in at sharply reduced operational expenses.

**Flight Passenger Check-in Process, Finnair, FI**

<table>
<thead>
<tr>
<th>Mobile work solution</th>
<th>Major benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Message from check-in</td>
<td>▪ OPEX an order of magnitude lower than with the ordinary paper based process (below 1 euro / passenger)</td>
</tr>
<tr>
<td>2. Reply to check-in</td>
<td>▪ Reduced load of check-in and gate personnel (see also lessons learned)</td>
</tr>
<tr>
<td>3. Confirmation from check-in, personal ID verified at gate</td>
<td>▪ Improved check-in process throughput, flexible personnel allocation in the airport</td>
</tr>
<tr>
<td></td>
<td>▪ Gate changes, guidance and delays can be informed to relevant passengers</td>
</tr>
<tr>
<td></td>
<td>▪ Majority of flight passengers can be integrated in the process since the SMS service is available in all GSM and UMTS phones</td>
</tr>
<tr>
<td></td>
<td>▪ Passenger status made available to airport and plane personnel, overbooking and special situations can be handled directly</td>
</tr>
</tbody>
</table>
Though based on a technically simple messaging solution, Finnair was able to differentiate it’s services.

Flight Passenger Check-in Process: Case assessment

1. Technology
   - Two-way automated SMS dialog (BookIT patented technology)
   - Integration with legacy check-in system

2. Mobile Value Proposition
   - Labor savings in land processes
   - Reduction of special documentation (boarding cards)
   - Improved customer service

3. Mobility Concept
   - The solution works with over 90% of Scandinavian passengers and with majority of passengers worldwide
   - Passenger needs no extra HW, SW or service contracts

4. Size
   - Total CAPEX, incl. implementation: below 250.000€
   - OPEX: 250.000€ / year
   - Number of mobile passengers currently: 100 000 (active marketing increases this fast)
Expansion across additional airports and service enhancements will improve the solution.

Technology – Value Matrix

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
Process and administrative change more challenging than technological or social aspects.

Lessons learned

= Main difficulty is not in technology, but the necessary changes in existing and related work processes
  • To get permission to use the service in Helsinki and Arlanda demanded negotiation with seven different authorities and required changes in their work processes
  • In many foreign destinations it seems impossible to get permission from authorities to use the system. Integration with check-in kiosks printing boarding cards would be needed
  • Travellers have to give explicit permission that Finnair can send service SMSs to them as a part of check-in process

= Personnel freed from expensive peak hour routines to more evenly distributed activities such as high value added services to customers. Personnel skills must be upgraded.

= Use SMS when the target user group is general public

= SMS messages with return channel are very efficient in getting ordinary public to use the service
Agenda

= Introduction

= Mobile work – how is it working?
  • Customs Agency (NL)
  • Frimley Park Hospital (UK)
  • Wired Up Community (UK)
  • Flight Passenger Check-in, Finnair (FI)
  • Mobile Sales Force (CH)

= Key success factors

= Discussion
This case analyses a mobile sales force solution (MSF) of a food manufacturer in Switzerland.

### MSF – packaged food, CH

#### Company background
- International company for packaged food focusing on branded retail business and selected b2b markets
- Major products: fruit-marmalade, fruit-juices, fruit-bars and baby food
- ~1 bn € (ca. 75% consumer foods, 10% baking aids, 5% industrial products)
- 270 employees in Switzerland

#### Mobile Work Solutions
- MSF solution based on SAP "mobile sales" and FujitsuSiemens tablet PCs
- So called “offline MSF solution” – wired synchronization only via ADSL
- 27 sales representatives: restaurants (15), specialist retail (baby nutrition) (5) and retail sales (7)
- Serves 40,000 clients from restaurants and retail in Switzerland. I.e. each sales rep. service between 600 and 1,200 customers
Major benefits of the MFS can be attributed to the top line – efficiency gains are marginal.

**MSF – packaged food, CH**

<table>
<thead>
<tr>
<th>Major benefits</th>
<th>Problems / barriers</th>
</tr>
</thead>
</table>
| ▪ Image improvement:  
  More advanced appearance vis a vis client | ▪ Being the first adopter of the solution resulted in:  
  ▪ Malfunctioning of software  
  ▪ Replacement of consultants  
  ▪ Project delays |
| ▪ Acquisition of partner business:  
  Take over of sales activities from other manufactures, who deliver to the same client base | ▪ Technical problems required special effort to keep the spirit of mobile sales representatives up |
| ▪ Improved marketing planning & controlling:  
  Better client data records allow for central marketing planning and controlling  
  Advanced and result-oriented sales incentive system | |
| ▪ New sales representatives can be introduced more easily since knowledge is externalized | |
| ▪ However, the company does not realize more customer contacts per sales rep. | |
The value of the MSF is generated by the image gains and new outsourcing assignment from competitors.

### MSF - packaged food, CH - Case assessment

<table>
<thead>
<tr>
<th></th>
<th>Technology</th>
<th>Mobile Value Proposition</th>
<th>Mobility Concept</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>- Personalized customer data per sales rep.</td>
<td>- Image improvement</td>
<td>- No mobile connectivity - Offline MSF (wired synchronisation at home via ADSL)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Limited software integration (no dynamic upgrade of catalogue, travel &amp; expenses, Lotus)</td>
<td>- Better central marketing planning and controlling</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>- SAP mobile sales v3.0 (4.0 available)</td>
<td>- Win sales outsourcing assignments from compt.</td>
<td></td>
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<tr>
<td></td>
<td>- Scalability limited (due to organisation)</td>
<td>- No net-bottom line effect (off-set by higher admin activity per sales rep)</td>
<td></td>
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<td>2</td>
<td></td>
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<td>3</td>
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<tr>
<td>4</td>
<td>- Total CAPEX (Capital Expenditure) in hard- &amp; software, incl. implementation: 500K-1 Mio€</td>
<td>- OPEX: 100-500k€</td>
<td>- Number of mobile workers: 27</td>
<td></td>
</tr>
</tbody>
</table>

#### CAPEX

- Limited leading
- (1) (2) (3) (4) (5)

#### OPEX

- (1) (2) (3) (4) (5)

#### Mobility Concept

- Local
- in work area
- on site
- several sites
- unlimited

#### Size

- < 50K €
- 51-100K €
- 101-500K €
- 501K-1.M €
- < 1M €

---

 linewidth, heightwidth, width
Being an early adopter had two effects: high position on value creation despite a limited technology score.

**Technology – Value Matrix**

1. **Human Centric Solutions**
   - Delimited Technocratic Solutions

2. **Mobile Value Proposition**
   - Marginal value Mobile access
   - Mobile Service Creation

3. **Bubble Filling**:
   - Mobility Concept
     - -stationary
     - -in stat area
     - -on site
     - -several sites
     - -unlimited

4. **Bubble Size**:
   - Indicative scope of Investment

- Dynamic update of product catalogue
- Better integration of software environments
- Seamless upgrading (v.4.0)

- Push for more outsourcing deals
- Group wide leverage (international expansion and use in key account sales)

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1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
The MSF solution will be technically upgraded to improve the sales process but wireless connectivity is not planned.

Lessons learned

= Technology
  • Low performance of mobile broadband connectivity and lack of flat fee pricing models will hinder the upgrade to a real mobile sales force solution.

= Organisational
  • Being an early adopter is a two edged sword - it brings the opportunity to differentiate in the market but bears the risk of complex technology implementation.
  • Critical success factors:
    – Early involvement of the mobile workers
    – Top management support
    – IT know how and resources
  • Sales representatives are mobile workers, per se. Their ways to work will not change radically due to new technologies.
  • Sales representatives feared increased administration effort.
Agenda

= Introduction
= Mobile work – how is it working?
= Key success factors
= Discussion
Although all five cases don’t rate highest on tech-scale, they create specific value propositions.

Technology – Value Matrix

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products/services improvement based on the deployment of mobile technology.
More than 15 cases have been assessed so far.

Technology – Value Matrix

1) Type of technology deployed and quality of technical and human implementation.
2) Significance of products / services improvement based on the deployment of mobile technology.
Developments are generally part of a steady move towards further automation – however, technology is far from being well implemented.

**Status quo: Technology**

**Contextuality**

(Personalisation/Localisation)
- Identification mostly password based – no “automatic” identification
- Content and applications adopted to user in often static manner
- Location based information used in some cases but often from non-integrated GPS systems

**System Integration**
- No 100% integration of systems/data/applications and very little cross-company integration to be found
- Mobile connectivity only used when controllable – therefore WLAN preferred over UMTS

**Human Interface Design**
- Traditional flat screens, touch screens tablet PCs but no advanced wearable presentation tools
- Voice recognition only found in two cases

**Technology Progressiveness**

**Scalability**
- Limiting factor of solution scaling mostly not the technology but the process environment, which differs across divisions/countries. Process change needed first
- Various MWE-solutions include proprietary applications, limiting a smooth up-scaling.
Most value is created within selected functions or divisions – value chain integration is seldom found.

**Value Chain**
- Integration of partners found rarely
- **Need of cooperation models** to share cost/benefit effects along value chain

**Profit and Loss Impact**
- Projects are **more evolutionary process improvements** than being part of a comprehensive “mobilisation”-strategy
- MWE projects are often perceived long-term and complex - difficult to attribute clear net effects (generally limited KPI controlling)

**Motivation**
- Mobile workers **generally adopt new technologies quickly**
- MWEs to be found in areas where workers work mobile anyway (=> marginal change in work habits)
- Sometimes low acceptance levels with older employees
- Below the line all cases report positive motivation effects

**Image**
- **Positive image effects** in most cases
  - Employees
  - Customers
  - Partners / competitors
Adequate skills, sufficient commitment and a systematic preparation are key enablers.

**Mobile Work Success Factors**

**Key enablers**

- *Proper project management* and clear communications (incl. training) is key
- Early involvement of mobile workers into the implementation process
- *ICT skills within the organisation* – even if it is not the core of the business (e.g. health)
- Top management commitment, that endures even over lengthy and problematic implementation processes
- *Definition of process change and well defined proposition* of the new work-process
- Use of proven technology (if no reason and resources for early adopter approach)

**Potential barriers**

- Lack of active management of enablers
- *Fragmentation* of organisation, loss of culture and shared values (social cohesion)
- *Increase of administrative activities*, which the mobile worker does not perceive important (e.g. data recording)
- “*Automation of humans*” – limiting decision capabilities and self management, lack of employee autonomy
- Early adoption works only with strong project management and clear vision
Having learned the first lessons of mobile work, three near term value drivers have been identified.

Near term value drivers

Mobile work environments

Integration along value chain
- Mechanisms (e.g. collaboration models) need to be developed that support integration of m- and e-work along the value chain to avoid silo solutions

Faster adaptation
- Software must allow more flexible integration of solutions across divisions, functions, and countries
- Processes, organisations and regulation must adapt faster to technological possibilities
- Even in less ICT-driven industries, specialised ICT teams need to be built up to speed up implementation

Maintain workforce motivation
- Maintain social cohesion and “thinking” employee for critical tasks
- Pursue appropriate automation (e.g. repetitive and low involvement tasks) and promote alternative tasks for compensation
Agenda

= Introduction
= Mobile work – how is it working?
= Key success factors
= Discussion
Discussion: Status Quo

Status quo

Technology progressiveness

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Mobile value proposition

Most value is created within selected functions or divisions – value chain integration is seldom found.

Projects are more evolutionary process improvements than being part of a comprehensive “mobilisation”-strategy.
Discussion: Near term value drivers

Near term value drivers

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