Personal, pocket media
- current research on the use of mobile TV

Peter Olaf Looms
DR-New Media & TV
DR/Danish Broadcasting Corporation
1. **Who I am and what I do**

2. **Mobility and people**
   - What is it and what does it mean for content?

3. **Personal pocket media** (mobile TV)
   - What are they?
   - How are they different from other media?

4. **Research results** on mobile TV from Europe
   - What have we learned from this research?
   - What problems have been encountered?
   - What still needs to be investigated?

5. **Conclusions**
   - How fast is the market likely to develop?
   - What is needed in order to grow the market?
Who I am and what I do

1/4

• Full-time strategy consultant at DR, a public service broadcaster - “to inform, educate and entertain”
• Responsible for several metadata projects:
  • Mapping metadata flows for radio and TV channels (analogue/digital/IPTV) as well as on-demand content within Denmark
  • 2 TV channels (satellite, cable, terrestrial, IPTV) with a market share of 40%
  • 20+ radio channels (FM, DAB, Internet) with a market share of 70%
  • The no. 2 Web portal in Denmark after MSN
  • 30% of the mobile content market in Denmark
  • Launching IP Datacast services on mobile handsets within 2 years
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  • Coordinating a state of the art study on mobile media using DVB-H
  • Coordinating DR’s participation in “Beyond :30”, a three-year research programme on new models for promos and advertising
Who I am and what I do

2/4

- Teach postgraduate courses on project management and strategy
- Participate in R&D projects (mobile content for youth, PVRs, interactivity and advertising)
  - the University of Hong Kong
  - the IT-University of Copenhagen
  - EMMDIS MSc Programme - Cross Media Production -INA, Institut National d’Audiovisuel, France
  - Institute of Interactive Television Research, Murdoch University, Perth, Australia (October/November 2004)
Who I am and what I do

2/4
Who I am and what I do

3/4

Current tasks:

• Chairman of 3 European working groups (broadcasters and manufacturers) for Personal Video Recorders (PVRs) in Europe

• Digital Asset Management in connection with metadata services at DR (digital TV, digital radio, podcasting)

• Benchmarking of web, mobile & digital TV projects in the Nordic countries within the Nordvision New Media group
DR Media Village

HKD 3.9 billion construction
HKD 1 billion on DAM
Launches end 2006
Mobility

What is it and what does it mean for content?
Mobility = On the move
Mobility = Waiting
Mobility = killing time keeping updated
3. Personal Pocket Media

What are they?

This isn’t!
Media at home

- Choosing which channel to watch (trial and error)
- Selecting a programme to watch (EPG)
- Deciding where in the home to watch
- Deciding when to watch
- Deciding what and when to watch
- Deciding where to watch

- Place-shifting 3G, B2H, podcasting
- On Demand VOD, IPTV, podcasting
- Time-shifting PVR (+ VHS)

Choice + Control + Customisation = Convenience
Media at home and on the move

**Networks:**
- IEEE 802.11, WiMax, GPRS, 3G, DMB, DVB-H, FLO
- mobile phone, i-Pod, PVR, PSP, laptop

**Terminals:**
- Handheld PVRs
- Portable wireless-LAN consoles
- DVB-H & DMB
- Laptop
- Traditional "hand-helds" & portables
Media at home and on the move

- Choosing which channel to watch (trial and error)
- Selecting a programme to watch (EPG)
- Deciding where to watch
- Deciding when to watch
- Deciding what and when to watch
- Making programmes
- Contributing to programmes
- Taking part in programmes

- Time-shifting: PVR + VHS
- Place-shifting: 3G, B2H, podcasting
- On Demand: VOD, IPTV, podcasting
- Teletext: EPG, web

- More than 1 TV at home
- Deciding where in the home to watch
- Citizen media, peercasting

- The RCD
- Voting in TV shows

Personal pocket media

Pocket Media

Personal Media

Portable & Luggable Media

Media on social devices
Personal pocket media
Personal pocket media

What are the contenders in the pocket?
One or two devices?

Pocket Media
Portable & Luggable Media

Media on social devices
Conclusion

Competitive Mobile Pocket Media

- Video
- Radio
- Games
- Music

Is there a sustainable market for personal pocket TV?
Research results
Research results

Two Finnish trials
Using DVB-H
Research results

Two UK trials:
O2 in Oxford (DVB-H)
BT Wholesale (DAB-IP) in London area
Research results

Spain:
Results for three different operators
Using DVB-H
Research results

3 Italia:
Regular DVB-H operations
Since May 2006
<table>
<thead>
<tr>
<th>Willingness to pay for content</th>
<th>FINLAND</th>
<th>OXFORD</th>
<th>PARIS</th>
<th>MADRID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages of what?? ??</td>
<td>41%</td>
<td>76%</td>
<td>55%</td>
<td>68%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average time spent per day (mins)</th>
<th>FINLAND</th>
<th>OXFORD</th>
<th>PARIS</th>
<th>MADRID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5-30</td>
<td>23</td>
<td>16</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Most popular content types</th>
<th>FINLAND</th>
<th>OXFORD</th>
<th>PARIS</th>
<th>MADRID</th>
</tr>
</thead>
</table>

Powerpoint slide from Mark Selby, NOKIA, June 12, 2006
Finnish Mobile TV Pilot
Results
August 30, 2005

Juri Mäki
© Research International Finland 2005
Who were pilot participants?

<table>
<thead>
<tr>
<th></th>
<th>Starting sample</th>
<th>Contacted</th>
<th>Recruited</th>
<th>Concept phase pilot sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>6229</td>
<td>3157</td>
<td>574</td>
<td>487</td>
</tr>
<tr>
<td>Women:</td>
<td>55%</td>
<td>47%</td>
<td>37%</td>
<td>35%</td>
</tr>
<tr>
<td>Men:</td>
<td>45%</td>
<td>53%</td>
<td>63%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Age distribution:
- 18-30
- 31-40
- 41-50
- 51-60
- 61-70

RESEARCH INTERNATIONAL
Trial sample of 487
- Many 18-30 year olds
- Predominantly men
- Claim that these are early adopters
- Cannot use this sample to talk about the Finnish population as a whole
- “possible early adopters”
Does the service have future potential?

Yes - assuming that the pricing and content are in line with consumers’ expectations and needs.

More than a half of the pilot participants (58%) believe that mobile TV will become popular in the future.
Same problem: the actual figure is somewhere in the range 3.4%-41% of all Finns.
Typical Early Adopter

- Male
- Aged +30-40

- Smartphone
- Mobile phones with a camera

- Has tried WAP and mobile services

- Follows news actively
- Listens to music also outdoors

Age, sex

Mobile phone

Mobile phone usage

Media usage/behavior

RESEARCH INTERNATIONAL
Problems:

1. Self-fulfilling prophesy!: Nobody in the panel was over 40!
2. Results do not match fully those of the UK and Spain
Problems:

1. Self-fulfilling prophesy!: Nobody in the panel was over 40!

2. Results do not match fully those of the UK and Spain

John Cullen, O2 about the Oxford trial:

“We had a broad cross section of customers with a cut-off below 18 (minors) and above 45 - this was a big mistake.”
Requirements for Mobile TV adoption according to pilot participants

Satisfaction with the content
Content that is also suitable for irregular and short period viewing

Usability of the Mobile TV service
Easy and intuitive service usability provides a foundation for service adoption

Technical performance & reliability
Good technical functionality and reliability is needed for a positive user experience

Handset usability & acceptance
Good mobile phone qualities must not be compromised at the expense of the TV application

RESEARCH INTERNATIONAL
Mobile TV is used to pass the time and to stay updated

- To pass the time (e.g., while waiting for something): 43% Often / Quite often, 33% Every now and then
- To stay updated (e.g., watching the news): 40% Often / Quite often, 31% Every now and then
- To relax / entertain oneself: 18% Often / Quite often, 32% Every now and then
- As background entertainment while doing other things: 16% Often / Quite often, 28% Every now and then
- To create own space (e.g., in public transportation): 10% Often / Quite often, 19% Every now and then
- As a second TV while the household’s TV is used by others: 9% Often / Quite often, 20% Every now and then

N=466
TOP 3 usage situations among active users

- When traveling using public transportation
- When at home
- When at work

*) Active users = those who used Mobile TV at least 3-4 times a week in the Adoption phase
User contexts:
1. Finnish results impacted by poor/non-existent indoor reception
2. Proportion of those using services on the move vary greatly from country to country

London has 3 million commuters who travel at least 30 mins. per day on the train

TOP 3 usage situations among active users

- When traveling using public transportation
- When at home
- When at work

*) Active users = those who used Mobile TV at least 3-4 times a week in the Adoption phase
Finland

Compared with Other Media

Source: TNS Gallup, Intermediatuximus 2004
Finland

Mobile TV Usage on Average Weekday

Source: Finnpool Oy

Active sample size between 255 and 351 during the whole period (April-June 2005)

Elisa R&D

30 May 2006
Mobile TV used to pass time and stay updated

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Often / quite often</th>
<th>Every now and then</th>
</tr>
</thead>
<tbody>
<tr>
<td>To spend time (e.g. while waiting for something)</td>
<td>43</td>
<td>33</td>
</tr>
<tr>
<td>To stay updated (e.g. watching the news)</td>
<td>40</td>
<td>31</td>
</tr>
<tr>
<td>To relax / entertain oneself</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>As background entertainment while doing other things</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>To create own space (e.g. in public transportation)</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>As a second TV while the household's TV is used by others</td>
<td>9</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Research International  
N=460
Finnish Mobile TV Demo Services by Elisa

- Video Clip Playlist
  - Communities send and schedule video clips, and offer additional services for interaction channel

- Local MMS News
  - Users send their own pieces of news, i.e. videos, images or texts, from their camera phone

- Event Specific Broadcast
  - MobileMonday Global Summit 2006

- Enhanced Radio
  - Visual elements, e.g. artist images and additional information, automatically combined with regular radio
Research results

Two UK trials:
O2 in Oxford (DVB-H)
BT Wholesale (DAB-IP) in London area
BT Livetime (1st trial)

Livetime's channels will be a mix of engaging brands with updated content.

**Content Partners**
- Core
- Sky Sports
- Universal
- Disney
- BMG
- HBO
- WB
- ft.com
- ITN
- NBC
- Teletext

**Livetime**

**SPORTS CHANNEL**
1. Football
2. Major Sports Round-Up
3. Extreme / Lifestyle

**ENTERTAINMENT CHANNEL**
1. Comedy
2. TV
3. Movies
4. Music

**NEWS CHANNEL**
1. Business / Markets
2. UK Current Affairs
3. Traffic and Weather
4. World News

“15 min broadcast cycle”
BT Livetime (1st trial)

Livetime will create new demand for entertainment and information services using DAB to broadcast audio and video.
BT Livetime (1st trial)

The delivery of DAB Digital radio and the EPG to mobile devices will drive penetration of new services and revenue streams for broadcasters.

- **Electronic Programme Guide**
  - An enabler for iRadio
  - Personalises digital radio experience, enables PVR functionality (e.g. Sky+)
  - Attracts and retains listeners with 7-day forward planning and additional information

- **iRadio**
  - Synchronises visual content with broadcast audio
  - Enables interactivity and direct response (to buy, to vote, to chat)
  - Enhances pure 'audio' radio experience

- **Cross-channel Services**
  - Provides back-channel for interactive services (e.g. voting)
  - Radio broadcast stimulates non-radio action which may be leveraged across existing 2.5G / 3G services

- **Digital Downloads**
  - DAB radio spectrum used to deliver data content (e.g. MP3, MPEG4 etc.)
  - File purchase stimulated by radio broadcast / advertising
  - Enhanced services offer combined audio/video (e.g. MTV)

**BT Livetime**
BT Livetime (1st trial)

Livetime content is distinct from 3G-suitable content and has different attributes...

**DAB-suitable**
- Music
- Event
- Song clips
- Video
- Event
- Previews
- News & weather
- Breaking information
- Games
- Event/tournament
- Gambling
- Event-based
- Advertising/Retail services
- Celebrity
- Breaking News
- TV Linked
- Live streams
- Pre and post show
- Trailers
- Handset personalisation
  - (ringtones, wallpapers) Top 10
- Adult content
  - Top 10
- Celebrity
- Videos
- TV linked
- Pictures
- Highlights
- Sports
- Goal alerts
- Comedy
  - Top 10
- Travel
- Traffic info

**3G-suitable**
- Music
  - Catalogue
- Video
  - Catalogue
- Games
  - Catalogue
  - Interactive
- Gambling
  - Interactive
- News & weather
  - Location based
  - In-depth
- Handset personalisation
  - Catalogue
- Communication
  - Chat
  - Dating
- Adult content
  - Niche
- Comedy
  - Archive news
  - Program catalogue
- Travel
  - Holiday sites
  - Maps
- TV linked
  - Voting
  - Retail
- Sports
  - Voting
  - Catalogue Highlights
- Comedy
  - Classic comedy catalogue
- Travel
  - Holiday sites
  - Maps

**Broadcast - 'Push'**

**Download - 'Pull'**
BT Livetime (1st trial)

...and Livetime is complementary, as PUSH Broadcast Services drive traffic for Operator PULL content services

Mutually Beneficial Relationships
- Content Provider
- INTERACTIVE
- GPRS
- 3G
- Service Provider
- Consumer

Livetime Will Drive Backchannel Usage
- Each service will have interactive elements driving GPRS/3G usage
- "Link" to GPRS services
- Great entertainment services that will drive consumer behavior & act as a stimulus for increased 2.5G/3G data services

Livetime Service will promote and drive customers towards GPRS/3G services

BT Livetime
**BT Livetime (1st trial)**

**Livetime Phased Development Strategy**

**Phase 1: 2005**
- Streaming Video
- 2 or 3 Livetime Channels
- News, Sports, Entertainment
- Digital Radio, EPG and iRadio

**Phase 2: 2006**
- Enhanced Functionality with Caching
- More Channels
- PVR Capability and Services
- Integrated Device and Chipset
- New Services incl. downloads

- Devices can cache content and channels
- Extension of service proposition to maximise personalisation / revenues
- Bring new content partners and channels to market
- Maintain competitive differentiation and defensive strategy against new entrants and technologies
The results of the first trial

Pilot Overview
First ever European Pilot of DAB-IP Mobile Broadcast TV

Key Pilot Objectives:
- Proving the technology and quality of service
- Understanding consumer thirst for Mobile Broadcast
- Desired content and usage behaviours
- Propensity to pay

Pilot Structure and Details
- Pilot ran from June to December 2005
- 1000 pilot users within the M25 using an enhanced DAB network
- Fully encrypted broadcast video (TV) channels
- Access to ~50 DAB radio stations
- Interactive "Red Button" functionality
- 7 day rolling Electronic Programme Guide
The results of the first trial

Key Pilot Findings

- Two-thirds of pilot users indicated they would pay up to £8 per month for the service on their current network.

- Over a third of pilot users would be willing to leave their current network to get the service.

- During the pilot:
  - TV was watched for an average of 66 minutes per week.
  - Radio was listening to for an average of 95 minutes per week.

- In total, TV and Radio services were consumed for an average of 2 hours 41 minutes.

- 54% would buy a mobile phone which supported the service.

- 59% of respondents rated the service as appealing or very appealing.

- 63% would recommend to family and friends.

- Results were consistent across demographics (age/gender/mobile phone spend/contract type).
Research results

Spain:
Results for three different operators
Using DVB-H
Spain

Abertis sponsored Mobile TV trials with all mobile operators in Spain involving all national broadcasters.
Spain

**DVB-H Pilots key learnings**

**TELEFÓNICA TRIAL RESULTS**

**Average daily usage: 16 minutes**

71% of active customers use the service between 15 and 20 minutes a day.

17% of active customers use the service more than 25 minutes a day.

Almost 75% of the customers would recommend the service. Over 55% would go on using it, even if they had to pay for it.

58.5% of the customers are willing to have contents designed for the mobile.

The programs watching patterns replicate those in conventional TV, although it is remarkable the high audience of music programs (TV as a personal music device).

**Service offering valuation**

- Quite broad: 65.4%
- Adequate: 17.6%
- Poor: 15.7%
- Very poor: 1.3%
Spain

DVB-H Pilots key learnings
VODAFONE TRIAL RESULTS

Average daily usage: 20-25 minutes
29.4% of active customers use the service between 31 and 60 minutes a day.
50% of active customers use the service more than 20 minutes a day.

80% of the customers would recommend the service. Almost all customers assume they will have to pay for it, and 50% would pay between 5 and 10 euros per month.

Tv news, serials and magazines are, in this order, the favorite programs for customers.

80% of trial customers consider the service as “very easy to handle”.

Morning from 7:00 to 14:00: 24.0%
“Lunch time” from 14:00 to 17:00: 32.9%
Afternoon from 17:00 to 20:30: 40.0%
Night from 20:30 to 24:00: 46.7%
Night from 24:00 to 02:30: 7.6%
Early morning 02:30 a 07:00: 1.3%
Don’t Know / No answer: 3.1%

Tv news: 52.3%
Serials: 14.9%
Magazines/Interviews: 31.4%
Sports: 25.9%
Cinemas, movies: 25.1%
Quiz shows: 11.7%
Music: 11.7%
Documentary: 6.7%
Reality shows: 3.9%
Children’s: 2.9%
Educative/culture: 2.5%
Kitchen: 0.4%
Other: 0.4%
Don’t Know / No answer: 0.4%
Research results

3 Italia:
Regular DVB-H operations
Since May 2006
Italy – Mobile Media

Company

Born in March 2003, 3 Italy reached major achievement in few years...

Customers

- 5.6 million subscribers as of 31st December 2005
- 55% market share of the Italian UMTS market as of December 2005
- 2.8 million new subscribers in 2005

Network

- 80% population coverage as of 31st December 2005 (99% with 2G roaming)
- 75% TV broadcasting coverage as of April 2006

ARPU

- €30.7 (FY '05), the highest of the Market
- 30% of ARPU from non-voice services (13% of ARPU from media services) as of 3Q'05 vs. 16% on average for the other players
Rai Partnership.

Italian State Television, made up of 3 free channels.

43.6% Audience Share

- **Rai Uno**: General entertainment and news, targeted towards family. Pro-government
- **Rai Due**: Youth targeted, politically right-leaning
- **Rai Tre**: Cultural and regional focused programming. Politically left-leaning
Mediaset Partnership.
Top private Italian company in TV media sector.

41.9% Audience Share
The very best of Mediaset’s programming including:

- The best from Canale5, Rete4, Italia1
- Football Serie A
- Moto GP
- Top events, concerts, theatre
SKY Partnership.
Digital TV via satellite, launched in ‘03.
More than 3.6m subscribers

**SKY CINEMA**
The best cinema productions: the most recent to the classics

**SKY SPORT**
24 hours a day – the most important competitions, championships and matches

**SKY VIVO**
All the top International and Italian reality shows

**SKY TG24**
National and international news updates minute by minute
La3 Channels.
Proprietary channels created to respond to specific needs of DVB-H market

- La 3 “Community” channel
- Channel focused on sporting events
- Entertainment channel dedicated to special events: theater, shows, concerts
H3G signed contracts with the biggest Italian content providers

H3G will produce four channels exploring new programme formats that will fit the DVB-H market
H3G developed strictly with the Handset providers to create a new type of pocket TV.

Samsung Stealth

LG U900

Inch
Resolution: QVGA

Inches
Resolution: QVGA

Televoting: in real time
110,000 new subscribers in the first month
The attraction of the FIFA World Cup in football
BUT!
Bundling of an expensive handset at attractive prices...
Other results
Mobile TV

NRK

- Norwegian Broadcasting Corporation, NRK has streamed TV to mobile phone since 2004

- Live streaming of both NRK1 og NRK2

- Sport events is probably the most popular content
  - Winter Olympics (on demand / live)
  - Goals (on demand)
  - The ability to fit the content to the platform is vital
NRKs 3g mobile TV test
Winter olympics, Torino 2006

- Two live streams
- Highlights and round ups on demand
- NRK.NO internet
  - About 450,000 started streams
- WAP.NRK.NO mobile internet
  - About 220,000 started streams
NRKs concept for fitting content to the small screen

- Soccer goals on demand are also pretty popular

The sequence is cropped for optimal viewing on small screens.
Other indications

- Oxford trial indicates that news, sports, soaps, music and documentaries were popular content (January 2006).

- 3 Denmark reports an above-average interest in the TV2 package during Tour De France (sports)
MTV has a strategic focus on mobile television

1. **popular shows from TV**
2. **Added value**: behind the scenes, previews, out-takes, content also known from DVD market.
3. **Original programming**, eg. shows designed for mobile television.

source: Gideon Bierer, MTV
What have we learned?
What have we learned?

Where do people use personal pocket media?
• They are used more at home than on the move
• At home there is competition from ordinary TVs, laptops and other devices - so why watch on a mobile?

What do users expect?
• It’s both about killing time, keeping updated and "must see" programmes
• Radio is used as least as much as TV
• People expect to see existing TV channels on TV and not just looped content
• People are willing to pay - but not a lot
What are the problems? 1/2

On the move

- A typical session length is 7 minutes - so how does this match with normal programmes?
- Why do people ask for TV channels rather than looped content (NVOD) or on demand content?
- What is the balance between time-killing and keeping people up-to-date?
- Time killing is in competition with iPods and handheld devices for playing games
- Keeping up-to-date is a competition between the Web, TV and radio
- Is there a viable business model for live personal pocket media?
At home

- Why do people watch on a pocket device at home?
  - Novelty?
  - Flexibility?
  - Individual viewing in a social context (with other people in the room)?
  - Built-in participation?

Right now we don’t really know
What still needs investigating?
What still needs investigating?

Personal pocket media in the home
  • What are the needs and gratifications driving this use?

Personal pocket media on the move
  • How important is keeping up-to-date for ordinary people, not business people?
  • Is there a viable market for up-to-date services, not just time-killing given the competition from pod- and vodcasting, games and other devices?

Business models
  • How is going to pay for the infrastructure?
  • Is there a good case for personal pocket media justifying the initial investment and running costs?
Conclusions
How fast is the market likely to develop?
What is needed in order to grow the market?
The demand for B2H
How much are they willing to pay?

- Subscription seems the best bet
- For commodities, unlikely more than EUR 7-10 per month [HKD 70-100/month]
The vexing question of timing…

How fast will B2H move compared with, say, DVD?
The vexing question of timing...

How fast will B2H move compared with, say, DVD?
DVB-H take-up and viewing share

Our guestimate for Denmark

Assumptions:

- √ 15-20 mins. viewing per day
- √ All DVB-H owners watch TV
- √ 100% terminal growth for whole period (better than DVD)
DVB-H take-up and viewing share

Our guestimate for Denmark

Assumptions:
- √ 15-20 mins. viewing per day
- √ All DVB-H owners watch TV
- √ 150% terminal growth for period to 2009; slowing down thereafter
**Business models**

**Mobile versus broadcasting?**

**Byepass**
- LICENSE FEE & ADVERTISING
  - Building on T-DMB experience in Korea

**Principal**
- ELECTRONIC PURSE
  - Prepaid PPV services building on experience from mobiles and DTT in Italy

**Converged**
- MOBILE MEDIA ORGANISER
  - Reacting to EPG/promos for TV to be viewed at home

**Discrete - no broadcaster**
- SUBSCRIPTION
  - DRM-based services; charges via mobile operator’s billing system

**DVB-H with DVB-CBMS**
(Convergence of Broadcast and Mobile Services)

**Free-to-air**
- Pay Services

**DVB-H with OMA2/return channel**
Conclusions

- Mobile TV is going to happen - but perhaps not as fast as many would like.
- We need to have a clearer idea of the kinds of content that lend themselves Mobile TV - and the competition from other personal pocket media - to come up with sustainable business models.
- There are many competitors in the “On the Move” segment competing for a limited amount of time per day.
- More R&D is needed on accessing and using content for Mobile TV - and the business models underpinning such services.
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