HOLD IT IN YOUR HAND AND PLAY WITH IT

THE DESIGN OF GAMES FOR MOBILE PHONES

IEE EVENING LECTURE
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WHY **BOTHER?**

- IT'S **EASY** TO DO!
- IT'S LOTS OF **FUN!**
- IT **DOESN'T** (YET!) NEED
  - EXPENSIVE **DESIGN TOOLS**
  - EXPENSIVE **ARTISTS**
  - **YEARS** OF EXPERIENCE
- IT HAS **MAJOR KUDOS!**
  - "I PROGRAM **NUCLEAR POWER STATIONS**" – YAWN!
  - "I PROGRAM **COMPUTER GAMES**" – SWOON!
- BUT **BECAUSE** OF THIS
  - IT'S HUGELY **COMPETITIVE**
  - SUCCESS RELIES ON **QUANTITY** AS WELL AS **QUALITY**
  - IT'S A **BUYER'S MARKET**
- DON'T EXPECT TO **MAKE MILLIONS** DOING THIS

MOBILE PHONE GAMES

- **LOTS** OF DIFFERENT **POSSIBILITIES**
  - **HANDSET** GAMES (E.G. SNAKE)
  - **SMS** (AND MAYBE SOON **MMS**)
  - **J2ME** AND **BREW**
    - "JAVA 2 MICRO EDITION"
    - "BINARY RUNTIME ENVIRONMENT FOR WIRELESS"
  - DON'T FORGET **REGULAR** PHONE GAMES (F.I.S.T.)
    - BUT WE **SHALL**, BECAUSE EVERYONE **ELSE** HAS...
- DRIVEN BY **BUSINESS NEEDS** OF **OPERATORS**
  - IN **UK**, THAT'S ORANGE, VODAFONE, O2 AND T-MOBILE
  - KEEN TO INCREASE **ARPU** ("AVERAGE REVENUE PER USER")
  - KEEN TO JUSTIFY **ASTRONOMICAL** 3G LICENCE EXPENDITURE
  - KEEN TO **DIFFERENTIATE** SELVES FROM OTHER OPERATORS
- BUT THE MARKET IS **CONTROLLED** BY **AGGREGATORS**

DEMOGRAPHICS

- WHO PLAYS? **WHERE? WHEN? WHY?**
- **VERY** HARD TO FIND OUT
  - INFORMATION EITHER **DOESN'T EXIST** OR IS **NOT RELEASED**
- "YOUR GAME WAS PLAYED FOR **1,000,000** MINUTES LAST MONTH"
  - **10,000** PEOPLE PLAYING **100** MINUTES EACH?
  - **100,000** PEOPLE PLAYING **10** MINUTES EACH?
- WHAT **IS** KNOWN:
- **FOUR** MAIN DEMOGRAPHIC GROUPS
  - **TEENAGERS** (FICKLE EARLY-ADOPTERS)
  - **GENERATION Y** (18-24, ATTRACTED TO BRANDED CONTENT)
  - **GENERATION X** (24-35, MORE DISCERNING OF QUALITY)
  - **CORPORATE** (PUZZLES, GAMBLING GAMES, COST NOT IMPORTANT)
- MOST MOBILE PHONE GAMES ARE PLAYED BETWEEN **9PM** AND **MIDNIGHT** ON **WEEKDAYS**
- **50/50** SPLIT BY **GENDER**

BUT FIRST...

- **WAP**
  - "WIRELESS APPLICATION PROTOCOL"
- CAME IN WITH A **BLAZE** OF PUBLICITY
- HIT **BIG-TIME** PROBLEMS
  - WENT FOR **LOWEST COMMON DENOMINATOR** PLATFORM
  - NO **ONE-TOUCH** BUTTON READ
  - NO **PUSH**
  - HTML WITH ALL THE **INTERESTING** BITS **TAKEN OUT**
  - SOFTWARE HANDSET SIMULATORS WORKED **BETTER** THAN THE HANDSETS THEY SIMULATED
  - NO VIABLE **BUSINESS MODEL**
  - RHYMED WITH "CRAP"
- **MOST** PROBLEMS EVENTUALLY FIXED IN LATER STANDARDS
- AS A **GAME** PLATFORM IT'S **DEAD** THOUGH (EXCEPT IN **CANADA**)

SMS GAMES

- POPULAR IN **EUROPE**
  - **25P** PER SMS MESSAGE
  - SOME GENERATE **1,000,000** SMS MESSAGES A **MONTH!**
  - PEOPLE **ACCEPT** THAT THEY HAVE TO **PAY** FOR SMS
- POPULAR IN **ASIA**
  - BUT **NOT** SO MONEY-SPINNING
  - EVEN **MMS** MESSAGES IN JAPAN ONLY COST ABOUT **4P**
- **UNPOPULAR** IN USA
  - MOBILE PHONES CAME **AFTER** INTERNET
  - PEOPLE STILL PREFER **INSTANT MESSENGER** SERVICES (WHICH ARE **FREE**)
  - **INTER-OPERABILITY** BETWEEN NETWORKS ONLY JUST ARRIVED
  - CALL **RECEIVER** PAYS COST OF A CALL (WHAT THE **BLUE CHEESE?!**)
  - SMS UPTAKE IS **GROWING** QUICKLY, BUT BASICALLY **FREE**

SMS DESIGN

- GAMES ARE **SERVER**-BASED
- AIM IS TO **ENCOURAGE** TRAFFIC
  - **MULTI-PLAYER** IS BEST FOR THIS
  - PLAYERS SEND **EACH OTHER** MESSAGES VIA **YOUR** SERVER
- MAIN **PROBLEMS**
  - SMS MESSAGES ARE **160 CHARACTERS** IN LENGTH, **MAXIMUM**
    - OR **130** FOR TRANSLATION INTO **GERMAN**
    - PEOPLE WON'T THUMB IN >**30** CHARACTERS **THEMSELVES**
  - SMS MESSAGES ARE **NOT** GUARANTEED TO
    - ARRIVE IN THE **ORDER** IN WHICH THEY WERE SENT
    - ARRIVE
  - YOU HAVE A CHOICE BETWEEN THE **SAME** AND THE **SAME**
    - TAMAGOCHI CLONES, DATING "GAMES", PERSONALITY "TESTS"...
- LIKE EMAIL, GOOD POTENTIAL AS **AUXILIARY** FOR SOME **OTHER** GAME

HANDSET GAMES

- ORIGINALLY, DEPENDED ON HANDSET
- BUT NOW, THERE ARE **RUNTIME ENVIRONMENTS** YOU CAN USE!
  - AND **87** HANDSETS TO USE THEM, WITH DIFFERING CAPABILITIES
  - 25 DIFFERENT SCREEN RESOLUTIONS, FROM **96×64** TO **640×200**
  - AVAILABLE MEMORY BETWEEN **30K** AND **50K+**
  - DIFFERENT **DECOMPRESSION** ALGORITHMS. HACK THOSE GRAPHICS!
- **EUROPE** & MOST OF **ASIA** USE **J2ME**
- **USA** IS HEADING FOR **BREW** (GEE, **THANKS** VERIZON)
  - LIKE **NTSC** V **PAL** FOR TELEVISION STANDARDS
- MOST HANDSET GAMES ARE LIKELY TO BE **STAND-ALONE**
  - PHONE LINK IS PRIMARILY FOR **DOWNLOAD**
  - MULTI-PLAYER GAMES **NOT** ON WISH-LISTS **AT THE MOMENT**
- **BRANDING** IS SEEN AS THE KEY, NOT **GAMEPLAY**
  - **GOOD** LICENCE, **BAD** GAME BEATS **BAD** LICENCE, **GOOD** GAME

J2ME

- **EUROPE'S** FAVOURITE
- **OPEN** STANDARD
  - BUT **96X64 B&W** SCREEN IS MINIMUM
  - **NOKIA** HAVE GUARANTEED THEY'LL ONLY USE **4** DIFFERENT SIZES & COLOUR DEPTHS
    - **YAY** FOR NOKIA!
  - SEVERAL JAVA **SPECIFICATION REQUESTS** IN PLACE TO FORMALISE THIS STUFF
  - BUT WILL HANDSETS DEVELOP SO **FAST** THESE BECOME **REDUNDANT?**
- **UNDEFINED** BUSINESS MODEL
  - **NONE** OF THE POSSIBILITIES ARE FAVOURABLE TO DEVELOPERS
- NO **DISTRIBUTION RESTRICTIONS**
- CAN **RECYCLE** EXISTING CONTENT (AKA "OLD GAMES")
- SUPPORTED BY **MORE** HANDSETS

BREW

- BASED ON **C/C++**
- **PROPRIETARY** STANDARD (QUALCOMM'S)
  - GOOD **API**, WITH MORE GUARANTEES
- **EXCELLENT** BUSINESS MODEL
  - **80%** GOES TO DEVELOPER!
  - WITH J2ME, TYPICALLY 80% **DOESN'T!**
- MAJOR **TESTING** REQUIREMENTS
  - **$700** FOR 2ND AND SUBSEQUENT ATTEMPTS
  - VERY CONSOLE-LIKE
- ONLY WORKS ON **CDMA** PHONES AT THE MOMENT
- **JVM** TO RUN **ON TOP OF** BREW IS PLANNED
- **OTHER** SERVER-SIDE ENGINES EXIST, BUT ARE **OUT** OF IT
  - **EXEN** ("EXECUTION ENGINE")
  - **WGE** ("WIRELESS GRAPHICS ENGINE")

DESIGNS

- EXTENSIVE USE OF **BACK CATALOGUES**
  - **MORE** ONCE GAMES (CONSOLE) PUBLISHERS WISE UP TO IT
- BUT THESE **DON'T** USE **3G PHONE** CHARACTERISTICS
  - OR, INDEED, **ANY** PHONE CHARACTERISTICS
- ALSO, THEY'RE **NOT MAINSTREAM**
- **SOME** COMPANIES ARE LOOKING FOR OTHER WAYS TO EXPLOIT THEIR PLATFORMS
  - **MULTI-PLAYER** GAMES
  - **GPS** DATA
- POTENTIAL FOR GENUINELY **ORIGINAL** GAMES HERE

MULTI-PLAYER

- **CLIENT/SERVER** ARCHITECTURE
- MEANS GAMES CAN BE MORE complicated
- PROCESSING DONE ON A **PROPER** COMPUTER
- PROBLEMS ARE **WELL UNDERSTOOD** FROM THE **INTERNET** EXPERIENCE
  - **IF** THEY ASK THE RIGHT PEOPLE
  - "HOW **HARD** CAN IT BE?"
- NO PROBLEMS WITH SOFTWARE **THEFT**
- **CLIENT** REQUIRES SPECIALIST TOOLS TO **HACK**, TOO
  - BUT IT'LL **HAPPEN...**
- NATURE OF GAME **STILL** DEFINED BY (IN)ABILITIES OF **HANDSET** THOUGH
- MULTI-PLAYER **API** PROBLEMS
  - **BREW** DOESN'T HAVE ONE
  - **J2ME** DOES, BUT AS BESPOKE **EXTENSIONS**

GPS

- SURPRISINGLY **LIMITED** NEW GAME DESIGN OPTIONS...
  - YOU CAN TELL WHERE SOMEONE IS, **ROUGHLY**
- SO THAT'S **TREASURE HUNT**
  - GO TO **TRAFALGAR SQUARE**. GO TO **HYDE PARK**. GO TO ...
  - TOWN TRADING. **GRIMSBY** AND **CARDIFF** FOR **CARLISLE?**
- ROLLING ELECTIONS
- INVISIBLE **MAZES**, GIANT **MINESWEEPER**
- MORE **INTERESTINGLY**, YOU CAN TELL WHO SOMEONE IS **NEAR**
- LAN-LIKE GAMES
- VOTIVE GAMES
- CELL WARFARE
- SO FAR, **NO** MAJOR GAMES USE GPS
- SOME ATTEMPTS BY ADVERTISERS, BUT **DISMAL** FAILURES

EXAMPLE

- HERE'S WHAT **A STATE OF THE ART** J2ME GAME **LOOKS** LIKE

- THE **COLOUR** SCREEN IS BECAUSE IT'S **NOKIA-SPECIFIC**

- PRETTY **GOOD**, BUT NOT QUITE **GAMEBOY ADVANCE** LEVEL YET...

HOWEVER...

- **HYBRID** PRODUCTS ARE ON THE HORIZON
- SAGEM MY**G-5**
  - CONSOLE-**LIKE CROSS-SHAPED** ROCKER BUTTON AND KEYS
  - MIDI & .WAV **SOUNDS,** 101X80 PIXEL **SCREEN**
  - **OUT NOW** IN THE UK (ON ORANGE)
  - USES **EXEN** AS ITS RUNTIME ENVIRONMENT.
    - **OH**-OH...
- NOKIA'S **N-GAGE** GAME DECK PLATFORM
  - **J2ME** ENABLED SYMBIAN O/S
  - GAMES AVAILABLE ON **MEMORY CARDS**
  - DUE HERE **FEBRUARY 2003**
- MICROSOFT'S **WINDOWS CE** SMARTPHONE
  - SORT OF APPEARED LAST MONTH
  - A YEAR LATE, NOT A GAMES PLATFORM, BUT IT'S MICROSOFT...

SUMMARY

- MOBILE PHONE GAMES
  - USE **CHALLENGING** (I.E. **IMPOVERISHED**) PLATFORMS
  - ARE **QUICK** AND **CHEAP** TO PRODUCE
  - STILL REWARD **IMAGINATION** OVER **DERIVATION**
  - **DON'T** MAKE POTS OF MONEY
- **DELIVERY** OF GAMES IS STILL CHANGING **RAPIDLY**
  - SMS RULES **NOW**, BUT FOR HOW LONG?
  - **LOOK OUT!** HERE COMES **AMERICA!**
    - BRANDS 'R' US
  - **J2ME** AND **BREW** WILL RULE WITHIN 5 YEARS
    - FOR CERTAIN DEFINITIONS OF "WILL" ONLY
  - GETTING PEOPLE TO **PLAY** YOUR MOBILE PHONE GAME IS **TOUGH**
- INVOLVEMENT OF **REAL GAMES COMPANIES** COULD SPELL THE END
  - THEY ACTUALLY **PLAN** TO RAISE THE BARRIER FOR ENTRY!
- IF IN DOUBT, **INNOVATE!**