AGGREGATORS: TRAVELLING THE INTERNET “FAST LANE”
Overview

- Aggregator definition, types & examples
- Enabling technologies
- New emerging aggregators
- Aggregator / Aggregatee strategies
- Summary
Aggregator Definition

- **Transparency**
  - Transparently collects information
    - with or without prior source arrangement
    - resolves contextual differences
- **Analytical**
  - Performs analysis
    - not merely gather
- **Representative**
  - Represents user
    - acts as agent for user
**Aggregator Types & Examples**

- **Comparison Aggregator**
  - aggregates book price information

- **Relationship Aggregator**
  - aggregates frequent flier mileage programs

- **Intra-organizational Aggregator**
  - aggregates separate departmental calendars

- **Inter-organization Aggregator**
  - aggregates information about a company from multiple sources (financials, news, etc)
www.amazon.com

www.evenbetter.com *

* Now called DealTime.com

www.books.com *

* Acquired by Barnes & Nobles

www.mysimon.com
Mega - Aggregators

Note: multiple book price aggregators

- using differing sources
- giving differing results!

What about an aggregator of aggregators

- A Mega-Aggregator ... more later ...

Aggregators not just about prices ...
www.usair.com

www.maxmiles.com
What is MaxMiles

- You give it all your frequent flyer info, it...
- Does mileage management for you...
- Gathers all your frequent flyer info
- Sends a personalized report via email
- Updates reports on web site daily
- Searches for missing mileage credits
- Analyzes most current mileage offers
"Access to this information is subject to the rules in the Dividend Miles Membership Guide. In addition, by using this site to access your Dividend Miles account, you agree that you will use this site in a manner consistent with the Dividend Miles Membership Guide and you further agree not to allow access to this site to any third party by revealing your access code to any third party for any reason. Failure to comply with the foregoing restrictions on the use of this site shall be grounds for the termination of your access to this site and/or your membership in the Dividend Miles program."
“Power of Attorney” on MaxMiles Site
Aggregators are your agents

Note: MaxMiles is merely aggregating your information for you

More examples of relationship aggregators later

Many more types of aggregators …
# Intra- and Inter-Orginizational Aggregator

## Integrated Spreadsheet

### Sources

**Real time Tibco**

**Merrill Lynch Research Report: General Motors**

- **Long Term Recommendation**: ACCUMULATE
- **Price**: $57
- **12 Month Price Objective**: $68
- **Estimates (Dec)**: 1996A 1997E 1998E
  - EPS: $7.44 $7.87 $8.23
  - P/E: 7.63x 7.87x 8.03x
- **Opinion & Financial Data**
  - **Investment Opinion**: B-2-2-7
  - **Mkt. Value / Shares Outstanding (mm)**: $89,011

### Stock Portfolio

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<tr>
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**Total Value**: 616,450

**Market Value**

- **GM**: 36%
- **INTC**: 22%
- **IBM**: 41%

### External

- Wall Street Journal - July 29, 12:12 am
- Stock 
- Earnings per common and common equivalent share
- Earnings per common and common equivalent shares outstanding

### Internal

- Internal
- External

### Search

- Business [Financial] [Company] [Industry] [PR News] [Business Wire] [Quotes]
Aggregatees

- **Books.com, MySimon.com, EvenBetter.com**
  - Barnes and Noble, Borders, Amazon, ...

- **MaxMiles**
  - United, American, TWA, US Air, ...

- **Intershipper.net, iShip.com**
  - UPS, ABF, FEDeX, DHL, ...

- **Universal Financial Aggregator (UFA)**
  - your banks, your brokers, your billers, ...

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Heard-on-the-Street (Hypothetical)

“Last year we rushed to develop a website and release our Mortgage Rates on the Web, . . . this month we no longer sell mortgages. Isn’t e-commerce great.”

--- an unemployed financial services aggregatee
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Emerging Technologies

Web wrappers

- Extract selected information from web
- Allows web to be treated as large database

Context mediators

- Resolve semantic (meaning) differences
- Enable meaningful aggregation

& comparison
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Concept of a Universal Financial Aggregator (UFA)
COntext INterchange Project (context2.mit.edu/coin)

Home of Aggregator Research
Current UFA Offerings (examples)

Account Aggregation Technology Suppliers
• Yodlee
• VerticalOne
• eBalance

Account Aggregation Offerings
• Chase, Fleet, Citibank (myCiti.com), . . .
• Merrill-Lynch, Fidelity Investments, . . .
• Yahoo, AOL, . . .
“Aggregation . . . The ‘killer app’ in the e-finance revolution”

http://www.tfconferences.com/conferences/AAG01/index.html
# Advisors: Stock holdings re-aggregate

## Account Summary

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<th>Brokerage</th>
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## Money Market Balance

|                  |               | 3416.00 |

## Stocks

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</table>

Total: 61165.72
Wizards: Money Market (MMA) example

MMA is also an aggregator, of MM rate sources
Multi- Mega- Aggregators!

- The Universal Financial Aggregator (UFA):
  - Aggregates your financial information
    - several ways: totals and stock holdings
  - Also uses the Money Market Aggregator
    - which draws on multiple MM sources
    - including sources that are, in fact, aggregators of some MM sources
UFA Goals

Consumers and Financial Institutions:

- Can do what they do better
- Can do things they could not do before
- Redefine the use, role, and relationship of financial service

Business-to-Business examples also
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Key Conclusion - Everyone Impacted

- **Aggregator / Aggregatees:**
  - Aggregators [create new marketplaces](#)
  - Aggregatees [need to be in these marketplaces (external impact)](#)
  - Aggregatees [need data from these marketplaces (internal impact)](#)

- **Aggregation needs to be part of every eBusiness and core business strategy.**
How Do I Play?

- Decide if and where you want to be an aggregator.
- Determine ways you might be aggregated.
- Define your strategic advantages in both situations and use them.
- Decide your “relationship state” with aggregatees and aggregators.
Obs:
• The most relevant transitions are represented
• An Aggregator can stay on any state without evolving to another aggregation state
Aggregator “states” example

Intershipper

Independent Agent (BITS, Inc.)

Independent Aggregator

Partial Collaborative Aggregator

Dependent Aggregator/Dominant (UPS)

Dependent Aggregator / Consortium

iShip
Revenue Models: Business-oriented (beyond advertising)

Application Service Provider

Lead / Sales Generator
- Identify buy opportunities for user
- Assemble packages
- Increase trust & reduce uncertainty

After-aggregation knowledge provider
- To aggregatee and/or 3rd party
Revenue Models: Consumer-oriented

- Information management services
  - Relationship management
  - Specially aggregated information
- Consumer agent
  - Comparison shop
  - Create compound product / package
- After-aggregation services
  - Provide insights and/or take actions
There may be value in aggregation but...

The REAL VALUE is after aggregation services

Books.com - How to price my books?
MaxMiles.com - Who flies where and when?
Intershipper.net - Who ships, from where, to where, how much?
Money Market/CD rates - Will my offering be effective? Are the holes in the market?
UFA - Can I manage my finances better?
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Summary
## Key Insights and Implications

<table>
<thead>
<tr>
<th>Insights</th>
<th>Implications</th>
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</thead>
<tbody>
<tr>
<td>• Everyone impacted</td>
<td>• Be part of strategy planning</td>
</tr>
<tr>
<td>• Aggs not limited to price comparison</td>
<td>• Identify new Agg applications and business opportunities</td>
</tr>
<tr>
<td>• Aggs can be combined and aggregated</td>
<td>• Entirely new types of applications can be defined</td>
</tr>
<tr>
<td>• Aggs create new info spaces</td>
<td>• Who will own this space</td>
</tr>
<tr>
<td>• After-agg even more important</td>
<td>• This must be exploited</td>
</tr>
<tr>
<td>• Aggs changes relationships</td>
<td>• What relationship do you want</td>
</tr>
<tr>
<td>• Business models and market conditions continue to change</td>
<td>• Must be prepared for changes</td>
</tr>
</tbody>
</table>

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Current Projects (partial list)

- Aggregation strategies (e.g., Account aggregators)
- Regional & Global Aggregation: Cultural & legal
- Multi-enterprise eBusiness: Trust & relationships
- Financial services/Internet support for SME’s
- Future Financial Services (e.g., Wireless aggregator)
- Context Mediation & Web data extraction *
- Data Quality & What XML will and will not do
- Internal data standards efforts (e.g., EDSI)
- Other new technologies (e.g., Mobile aggregation)

* Patents awarded in 1999
For Further Information and Contacts

/MIT Research:
- http://context2.mit.edu and http://context2.mit.edu/aggregation
- http://web.mit.edu/tdqm

/MIT Technology Licensed Software:
- http://www.arsdigita.com/products
Summary

- Understand Aggregation Opportunities
- Aggregator Tools
- Strategies for Aggregators
- Strategies for Aggregatees
- After Aggregation Opportunities
Acknowledgements

Research funded, in part, by

- Banco Santander (BSCH)
- Citibank
- DoD Advanced Projects Agency (DARPA)
- Fleet Bank
- Merrill Lynch
- MITRE Corporation
- PricewaterhouseCoopers
- Suruga Bank