Marketing Information Systems: part 3

Course code: PV250

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Timetable

Part 1:   Oct.22 Mon 14:00–17:50 C525

Part 2: Oct.23 Tue 8:00–11:50 G101

Part 3: Nov. 05 Mon 14:00–17:50 C525

Part 4: Nov. 05 Tue 8:00–11:50 G101

Part 5: Dec.10 Mon 14:00–17:50 C525

Part 6:   Dec.11 Tue 8:00–11:50 G101

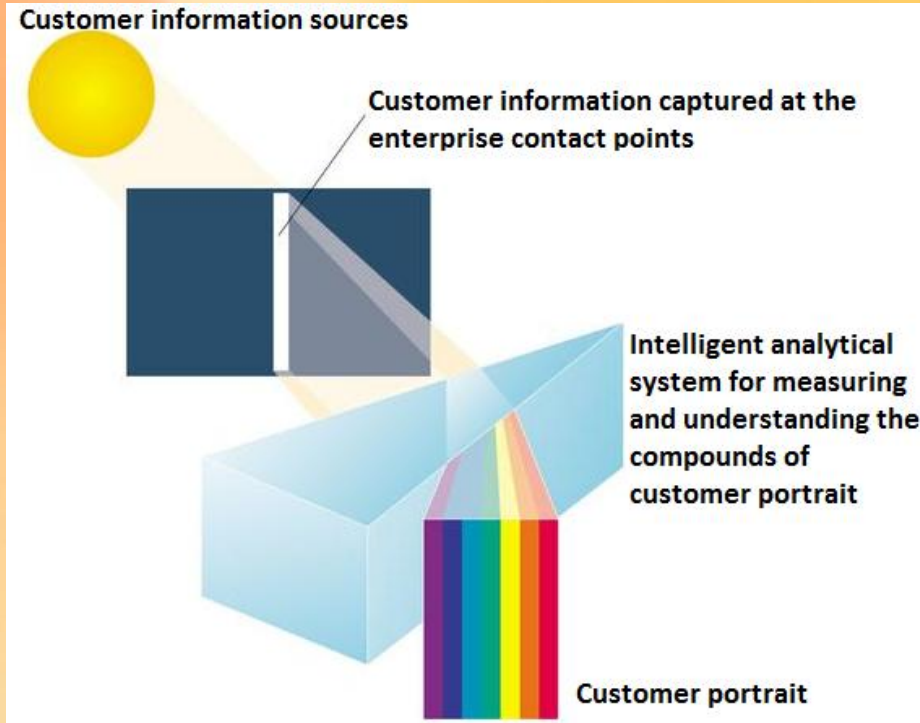**Assessment session:** 1-2nd week of January

Customer Relationship Management

Customer relationship management (CRM) is a broadly recognized, widely-implemented strategy for managing and nurturing a company's interactions with clients and sales prospects

 The overall goals are:

- to find, attract, and win new clients,

- nurture and retain those the company already has,

- retain former clients back,

- and to reduce the costs of marketing and client service (Pepper, Rodgers, 2004)
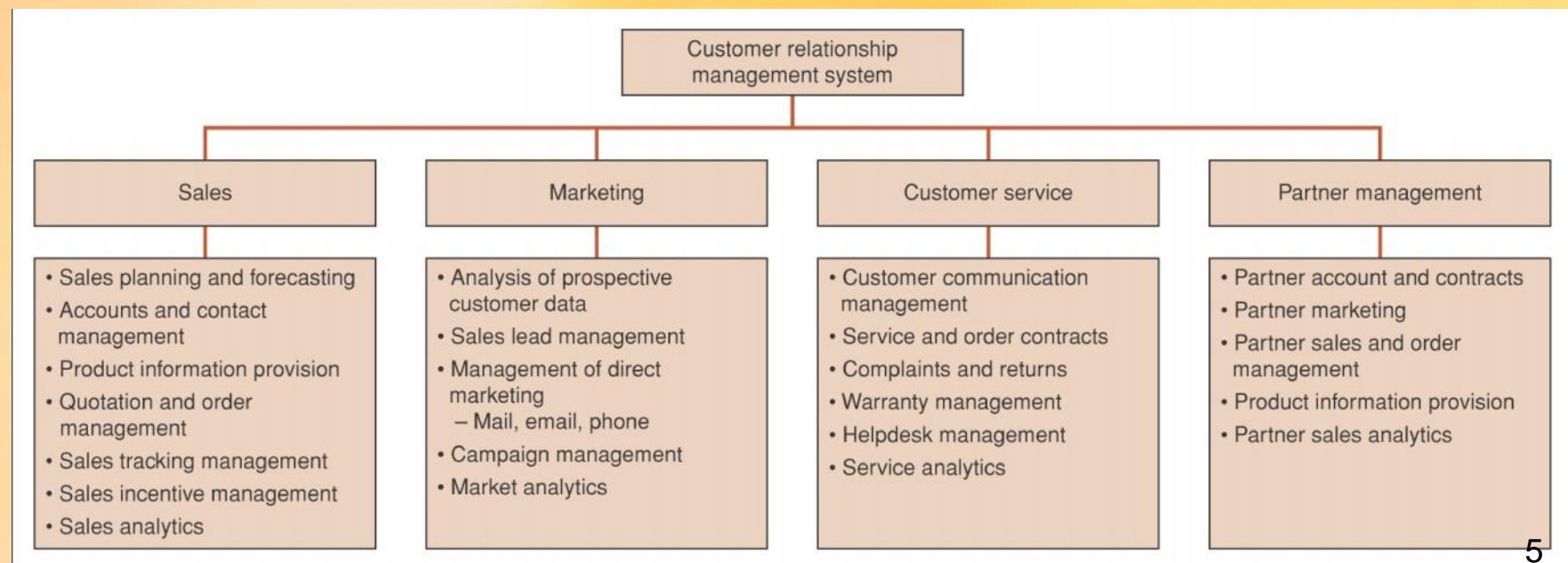
The spectrogram principle of the customer analysis

Customer information sources

Customer information captured at the enterprise contact points

Intelligent analytical system for measuring and understanding the compounds of customer portrait

Customer portrait

The success of the enterprise highly depends on the "prism" as analytical model which can convert "white light" of information to the swath of colours with different brightness: identify compounds of customer portrait by characteristics, their importance and effects to the financial results of the enterprise.

Components of CRM Systems

- The software producers understand the structure of CRM differently

- You can find CRM, which mean different goals: sales module, communication module, performance of sales personnel, distribution channel analysis, loyalty "point" systems, etc. (what type is Sugar CRM?, MS CRM ?, SAP CRM?)

Customer relationship management system

Sales	Marketing	Customer service	Partner management
• Sales planning and forecasting • Accounts and contact management • Product information provision • Quotation and order management • Sales tracking management • Sales incentive management • Sales analytics	• Analysis of prospective customer data • Sales lead management • Management of direct marketing – Mail, email, phone • Campaign management • Market analytics	• Customer communication management • Service and order contracts • Complaints and returns • Warranty management • Helpdesk management • Service analytics	• Partner account and contracts • Partner marketing • Partner sales and order management • Product information provision • Partner sales analytics

5

Customer Relationship Management (CRM) Systems – general understanding

- Provide information on existing customers, their loyalty and churn
- Identify and target new markets
- Enhance customer's satisfaction
- Manage relationships with partner organizations
- Marketing: cross-selling, upselling, bundling
- Customer service
- Partner relationship management
- Internal marketing (making enterprise attractive for its workers for keeping their knowledge)

What's hot from Gartner 2012

Table 1. Highest CRM Application Priorities, 2012

Sales	Customer Service	E-Commerce	Marketing
Mobile sales — table/smartphone	Peer-to-peer community	Web storefront	^Digital marketing
^Social CRM sales	^Intelligent agent interface	Search engine optimization (SEO)	Social monitoring and analytics
SaaS sales force automation (SFA)	^Mobile support	^Mobile device storefront	Lead management
Lead management	SaaS customer support system (CSS)	^Social and Facebook commerce (F-commerce)	Loyalty management
Configure, price, quote	Web self-service	Distributed order management	Inbound marketing

What's hot from Gartner 2012

^Sales content and collaboration	Knowledge management for service resolution	Partner, distributed and field marketing	Predictive analytics
Sales incentive compensation	Feedback management	^Mobile payments	Marketing performance measurement
Forecast and pipeline	^Social sense and respond	Web analytics	^Facebook marketing
Sales training	^Video for customer service	^SaaS and integration as a service (IaaS) for e-commerce	^Mobile marketing apps
^Clienteling	^Voice of the customer	Multichannel inventory	Integrated marketing management
^Voice SFA for sales	Workforce optimization	Product reviews	Campaign management

Cross-CRM technologies: ^master data management (MDM), business process management (BPM), ^customer experience management (CEM)

^ = priority

Source: Gartner (April 2012)

8

CRM- is a philosophy of management enterprise resources (4+1 main types).

Traditional parts of enterprise resource capital:

- Financial
- Material
- Human
- Intangible
- Information

CRM explores new types of resource capital

- Knowledge & info
- Customer capital, where share of each customer is explored (different approach is market share)

Customer capital management goals

Get:

... Profitable customers

Keep:

... Profitable customers as long as possible

... Win them back from competitors

... Convert not-profitable customers to the profitable

Enhance:

... incentives to get additional products

.... Positive reference from existing customers to win new

... Customer service programs

CRM information needs

CRM goal	Information need	Capability of accounting systems to supply info
Profitable customers	New and old customers Profit per customer	No Profit calculation per unit
Keep profitable customers as long as possible	Communication history	Sales info is available Limited info about reaction to promotions
Win profitable customers back from competitors	Customers of the competitors Who were won back	No
Convert not-profitable customers to the profitable	Expenses per customer Sources for turnover	No
Provide incentives to get additional products	Know individual needs	No
Enhance positive reference	Opinion, referrals, impact	No
Enhance customer service programs	Effectiveness of programs	No

IDIC model for CRM
D. Peppers ir M. Rogers (2004)

IDIC model

Analytic:

Operational:

Identification

Differentiation

Interaction

Customization

12

Application of IDIC model

- Identify customers- explore individual characteristics. Needs variables for identification: tel.no. address, email, psychographic characteristics, preferences, habits

- Differentiate customers- searching for different characteristics which enable segmenting. Definition of similar segments helps to focus attention to best (most profitable) groups, and create scenarios evoking specific behaviors

- Interact with customers- search for tools and technologies for creating perception of the enterprise to its customer in attractive way, get feedback, avoid information distortion due to attitudes (e.g. caused by resistance to spam)

- Customize treatment- maximize profit due to meeting individual needs

Two tasks for managing CRM

OPERATIONAL CRM:

How to collect information about relationships

Surveys, registering calls, visual observation, loyalty cards, promotion responses

ANALYTICAL CRM:

Ho to evaluate and use information

Evaluation by creating meaningful CRM indicators

Reporting, statistical methods, analytic tools, intellectual computing

What is indicator?

- Indicator is a common language among managers
- Instead of evaluations "good", "bad", the numeric evaluations, rankings, graphical visualizations, etc. could be more effective
- Indicator is a lever which we have to envisage, and use proper impulse of sufficient power to make impact on it.
- Indicator reveals influences which affect enterprise. It is important to notice these influences, to know how they are created, what efforts are needed to make them serve to the enterprise needs.

Integrated approach- CRM perspective

16
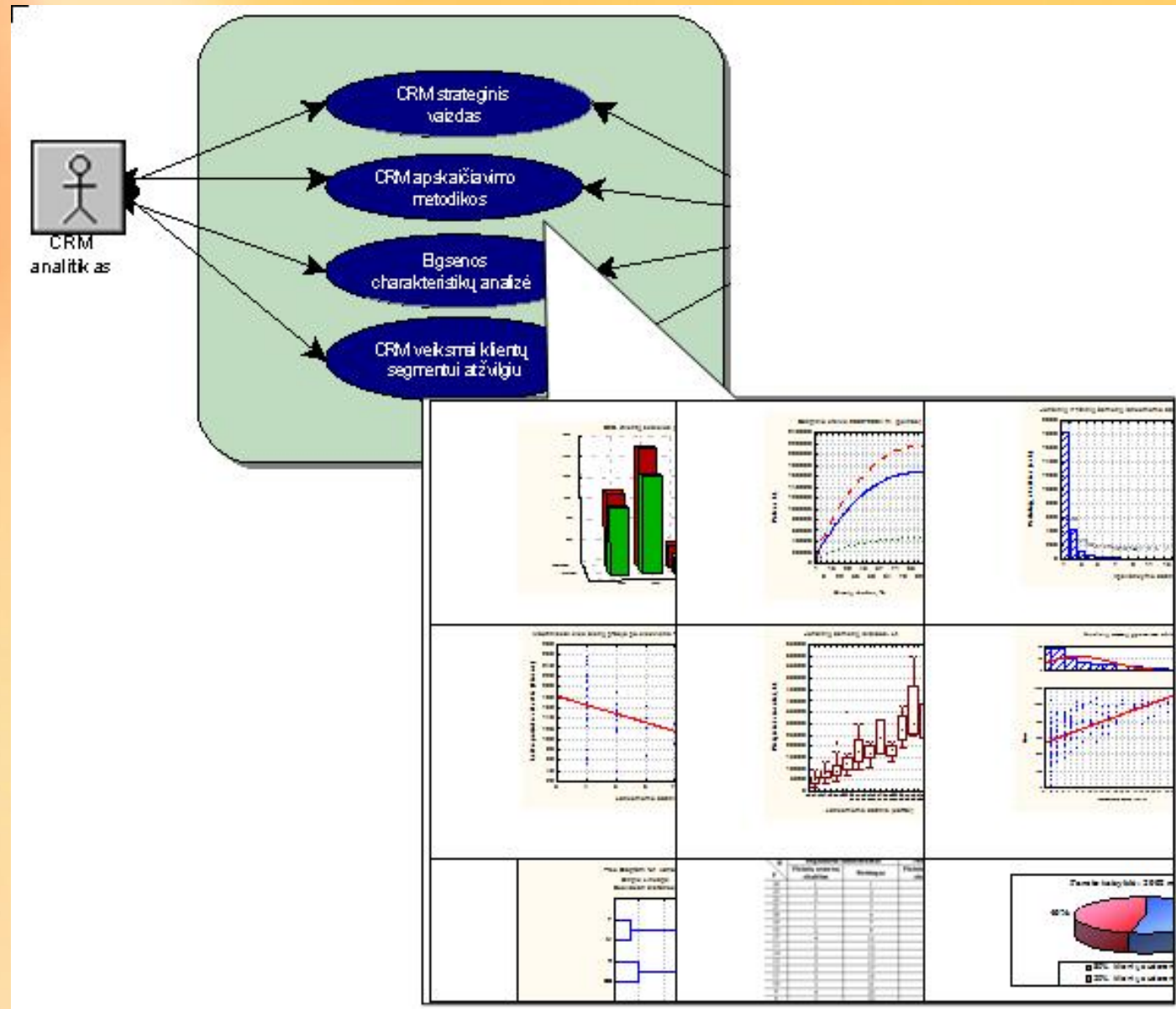
Problems of getting right data for analysis

Accounting information is limited, there is need for contact points, where customer information can be recorded (loyalty cards, personalized access points, transaction terminals, call centres, web pages or social networks)

The best descriptive is qualitative data, but it is collected in inconsistent way (surveys), or stated by subjective judgments, or classified by subjectively extracting characteristics of communication

Therefore our challenge is to apply the historical purchase data, utilize information from access points and capture qualitative data consistently

How to create indicators ?

- Traditional commonly understood marketing indicators?
- What is missing? What direction should be followed in order to enhance power of indicators?
- How to understand gap?
- Common rules for creating indicators : absolute (turnover, profit), relational (EBITDA), percental (impact of marketing for "bottom line" in accounting), complex interpretation (RFM), formulas (LTV), ranking (loyalty)
- Analytical report types : summarization, queries, trends, anomalies, extremities.
- Textual, numerical, color, graphical

Information for evaluation

- CRM evaluation based on accounting information
- Defining loyalty and its relationships to sales
- Using non-financial information
- Balanced scorecards
- Internet technologies based indicators
- Social network analytics

Gap of the indicators

20
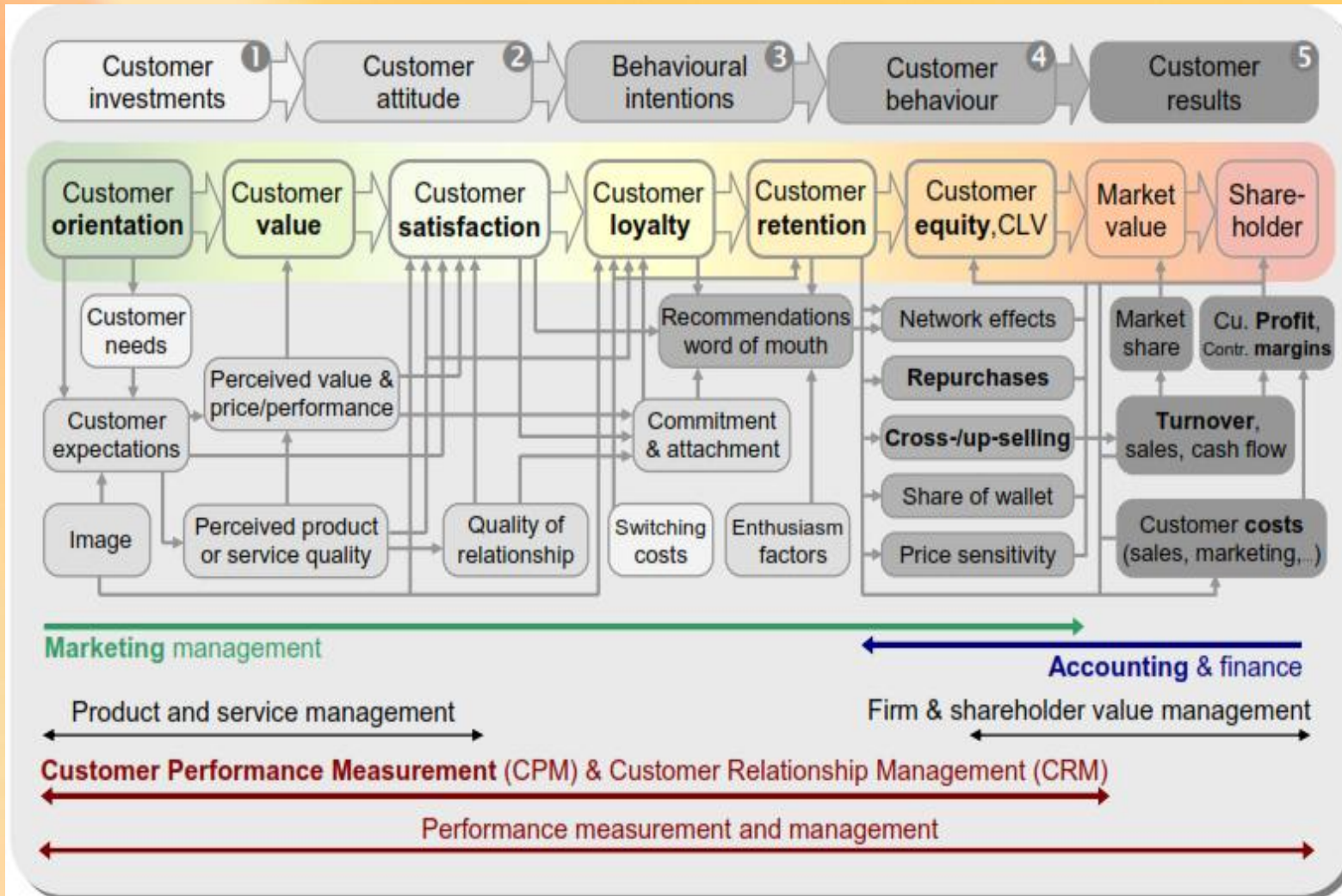
How to fill the gaps to final indicator

- Making qualitative indicators. Negative side- hard to transform to measurable
- Creating lead indicators which are going to influence factual results in (lag indicators). Negative side- some relationships between them are missing or misleading
- Proxy indicators try to created intermediate links leading to final values Proxy—Financial—Statistical
- Creating indicators similar to financial philosophy : Return on Customer Investment (ROCI); Return on Relationship (ROR); – similar to ROI (return on investment in finance)
- Longitudinal metrics – involve dynamics
- Refining indicators by learning relationships philosophy

CRM variable types

- **Simple transactional variables** – purchase value, frequency
- **Derived variables-** CLTV- customer lifetime value
- **Survey-based:** satisfaction, knowledge, preference
- **Event-based:** churn, complaint
- **Expert-evaluation-based:** loyalty
- **Compound variables** – RFM
- **Proxy variables-** compound-weighted-ranking based
- **Models**: Pareto, Whale curve, custom designed models

Promising variable types

1) Profile data

Adress data
- #, Name, address, e-mail, phone, etc.

Profile data
- *Demographic data* (age, civil & family status, education)
- *Psychographic data* (interests, lifestyle)
- Buying and payment behavior

2) Purchase data
- Dates of purchase
- *Purchased products*
- *Purchased volume*
- *Heavy usage index*
- *Frequency*
- *Recency*
- *Monetary*
- Ø order value
- *Duration of RS*

3) Customer Performance Indicators (CPIs)

Customer relationship indicators
- **Customer orientation**
  → Subsection 5.1.5
- *Perceived product/ service quality*
- **Customer value**
  → Subsection 5.1.6
- **Customer satisfaction**
  → Subsection 5.1.7
- *Customer attachment/commitment*
- **Customer loyalty**
  → Subsection 5.1.8
- **Customer retention**
  → Subsection 5.1.9
- *Customer Lifetime Cycle*

Performance indicators for profitability
- *RFM method*
- **Repurchases**
  → Subsection 5.1.10
- **Add-on-selling**
  → Subsection 5.1.11
- **Share of Wallet**
  → Chapter 5.1.12
- *Price sensitivity*
- **Sales** or **turnover**
  → Subsection 5.1.13
- **Contribution** margins
  → Subsection 5.1.14
- **Customer profits**
  → Subsection 5.1.15
- **Customer equity**
- or *Customer Lifetime Value* (**CLV**)
  → Subsection 5.1.16

Customer investment indicators
- *Acquisition costs*
- *Retention costs*
- *Recovery costs*
- *Administration costs*
- *Transaction costs*
- *Communication costs*
- *Service costs*
- *Contact costs*
- *(After) sales costs*
- **Total customer costs**
- *Marketing costs*
- **Return on's:**
  - sales (**ROS**)
  - customer satisfaction
  - customer (**ROC**)
  - relationship (**ROR**)
  - Marketing (**ROM**)
  - Investment (**ROI**)

4) Service data
- General customer requests
- Demands of technical services
- *Number and quality of complaints*
- *Number of returns*

5) Contact data
- Date of contact
- *Number, types, channel, intensity, costs of communication*
- *Frequency of actions*
- Customer adviser

fc *Inverse: promising performance indicators for fuzzy customer segmentation*   Source: adapted from [Homburg and Sieben 2003, p. 427]

23

CRM indicator and metric samples

Customer profitability metrics

- Cross-sell change

- Process and operation cost change

- Credit usage level

Change of number of customers and their structure:

- attrition,

- churn rate,

- Naming groups by character: "vintages", "cohort", "VIP"

- satisfaction changes according to survey data

CRM indicator and metric samples

Value of customer

- Evaluation in monetary terms by assumption that customer is the asset of enterprise
- NPV-net present value
- Potential value (IRR)
- Current and potential value according to survey data
- ROI – return on investment to customer

Cycles among purchases:

- Cycle duration (shorten, lengthen, regularity)
- Buyer trajectory – characteristics accumulated during purchase history

CRM indicator and metric samples

Evaluation of purchase structure:

- Large purchase buyers
- Petit purchase buyers
- Frequent purchase return makers

Grouping, segmenting metrics:

- Decile analysis (divide by 10% segments)
- Pareto principle
- Whale curve
- Share of customer (e.g. VISA uses share of wallet)
- Share of personal consumption, expenditures
- Customer satisfaction

CRM indicator and metric samples

Life cycle value

- Most valued customer segment- MVC

- Relationship value

- Relationship duration

- Migration

Loyalty metrics

- Specific behavior: "bought in past and will buy in future"

- Attitude, brand preference

- Tenure functions

- Ranking according loyalty strength

Loyalty categories –their variety

- Loyalty pyramid expresses levels of loyalties
- **No loyalty**– first level of loyalty when it is simply absent The user freely searches for product by changing suppliers, not bonding to them. If he bought during promotion period, the sales of this loyalty group return back to previous level
- **False loyalty:** customer does not feel any difference among products of suppliers, but he has no need to change them –behavior by inertia
- **Hidden loyalty-** customer has preference to some product or supplier but not always keeps buying it
- **Real loyalty-** the customer has clear preference and uses it even when there exists sufficient choice

Loyalty categories –their variety

Customer Loyalty - Four Kinds

- Forced - Monopoly – Ends With Choice
- Habit - Purchase Without Thought
- Bought - Bribe Offered For Not Top Of Mind Choice
- Emotional - Customers Return Indefinitely Through Emotional Engagement

Engaged customers spend more, generate higher margins and are passionate influencers.

24

InsideOut
Culture to Customer

29

Compound variables – RFM

Variable R (Recency) show the number of days since the last visit till the date set for analysis

Variable F (Frequency) indicator is equal to the number of visits of the customer.

The M (Monetary value) is equal to the total value of purchases during all the history of communication.

- CRM task lays in defining **RFM combination matrix** for decisions. E.g. how we treat recent customer who comes often, pays much ? How do we treat if he comes rarely? Do we change opinion if he comes only during holiday time? If we waited for his holidays and he missed – did he chose competitor?

"Whale curve" analytic visualization

Customers are sorted by descending order of their turnover (or profit) values, in order to compute thier cumulative percent values and to plot to Y axis.

In X axis you plot the cumulative percent of the number of customers (e.g. if the enterprise has 10 customers, each of them makes 10% of the enterprise customers, second line will show cumulative of 2 customers which make 20 cumulative percent, etc.

The Whale curve shows what percent of total number of customers in X axis are able to generate their part of the total enterprise turnover (profit) (plotted in % in Y axis).

The final point of curve means total turnover by all customers

"Whale curve" of profit, red line denotes loss

Sukauptas pelnas

Pelnas: % bendro pelno dalis

Sukauptas klientų procentas
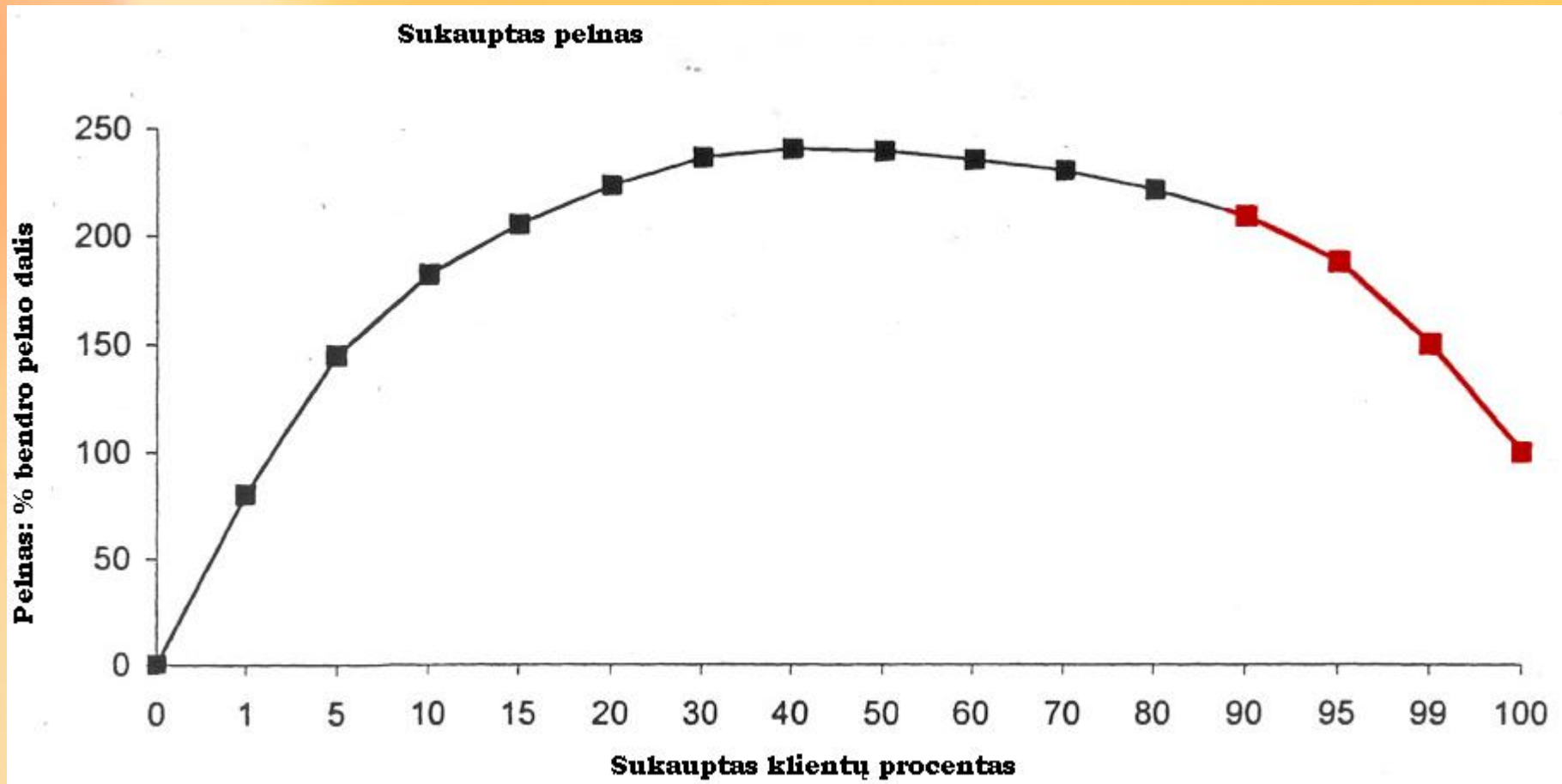
Using "Whale curve"

Define visually the areas with same growth, split customers to segments accordingly

- Ask questions by analyzing behaviors of segments: what we can do in order to convert "second best" customers to the "best"

- How we can convert customers who bring "loss" to "profitable

- Do we have different rules and personnel for segments?

We can split cumulative curve to "deciles" as well

Pareto "law" is visible in "Whale curve" at 20% in X axis

CRM for changing customer indicators

- Cross sell- offering additional products, which are compatible to those already bought

- Up-sell- improvements of the product already bought

- Bundling- complex product /service/subscription

- "Churn rate" measurement. No precise methods to define. The goal is to elaborate indicators which could make early prediction of churn

- Mass customization- exploring customer choices, segmenting them and offering as most popular of them as standardized solutions for best-fit segments (improves costing, reduces waste and stock)

- Using strategic games for capturing rules of behavior (e.g. putting advertisements to Second life game)

Proxy – creating cause-effect linked indicators

Indicator	Measure	Weight %.
Average income	Average of present and forecasted income	20
Change of income	Annual change	25
Relationship features	Duration of contract	15
	Tenure of history	
Technologic involvement	System integration	20
	Reporting system	
	Tele-Web	
	Email	
Parrnership value	Contact level	10
	Refferal	
	Future value	

Top 5 customers	Ranking by „proxy"	Ranking by monetary value	Rank difference
A	1	1	0
B	2	22	+20
C	3	62	+59
D	4	4	0
E	5	3	-2

Customer portrait

Source:Kriksciuniene et al 2012
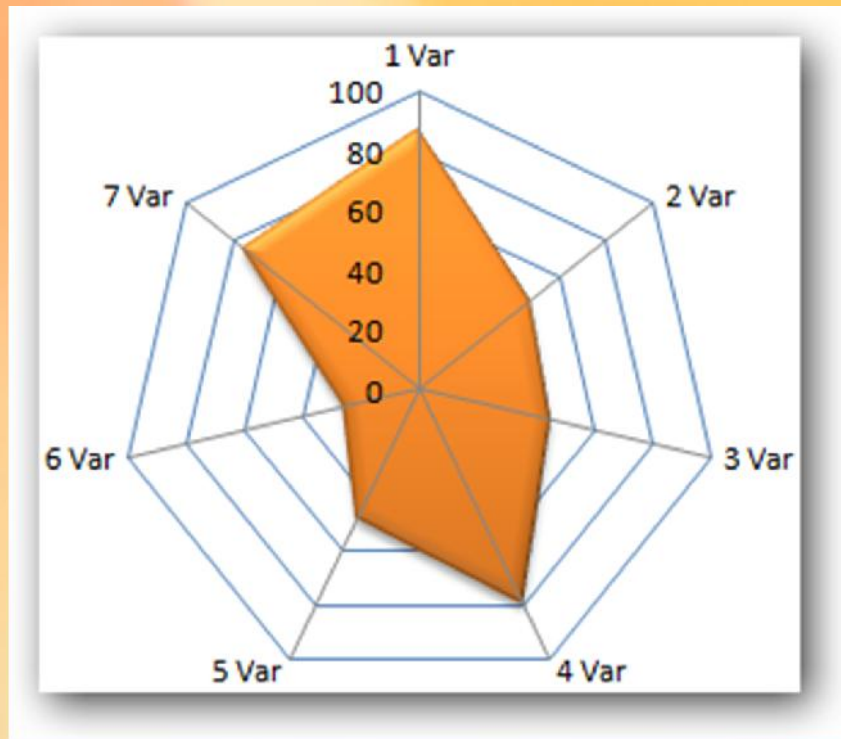
Analytical aspects:

1 The percentage difference of each characteristics of the customer compared to the best value existing in the customer base of the enterprise.

2 customer portrait can be expressed as the area plot of the radar chart. Bigger normalized percentage values of each variable of the customer portrait form larger area plot, which can show, that the particular customer falls among the best customers of the enterprise.

3 possibility of tracking each customer over time by dynamics of each variable and the compound index as well.

Customer index

Customer portrait index is computed as a mean value of all normalized variables included to the customer portrait

If we assume that each variable has different importance we include including weighting of the variables

37

Web-page based indicators

Indicator	Title	Meaning
CPM	Cost per thousand	Thousand shows of banner
CPS	Cost per sale	Cost of one web transaction
CPV	Cost per visitor	Price for one visitor who made click
CTR	Click/through ratio	Ratio between showing and clicking
	Traffic	Number of visitors per time period
	Site reach	Number of visitors per time period
	Site frequency	Number of returning visitors per time period
	Burn out of a banner	Fall of response to banner when it is shown to the defined visitor segment
	Ad views (also impressions	Number of reaches of banner
	Banner click	Number of reaches of banner
	Hit	Data request for download 1 „hit"- 1 request ."Qualified hit"- successfuly sent
	Visits	Visit of one customer for series of activities. Rules how to recognize same visitor as new (time limit).

Application of computerized solutions for CRM

- www.sugarCRM.com –registers activities related to customers (contacts, commercial offers, negotiations, sales). Analytic tools. System is cloud based, customized

- www.microstrategy.com system for intelligent analysis: aggregation of data, drill-down principle slice-and dice

- Campain management- dynamic workflow based solution by microstrategy – provides wizard based, responsibility- based process management analytic support

CRM campaign research (Microstrategy)

1. Sales situation is evaluated

2. Loyalty level is evaluated

3. Problem is explored in detail (see the following example of wrongly selected promotion delivery channels (pre-campaign analysis)

4. Campaign is planned, the target group is selected by analytics

5. Post – campaign analysis

Example :microstrategy campaign analysis workflow

megastore
www.megastore.com

home   customers   campaigns   web traffic   channels

Logout   Friday, April 21, 2000
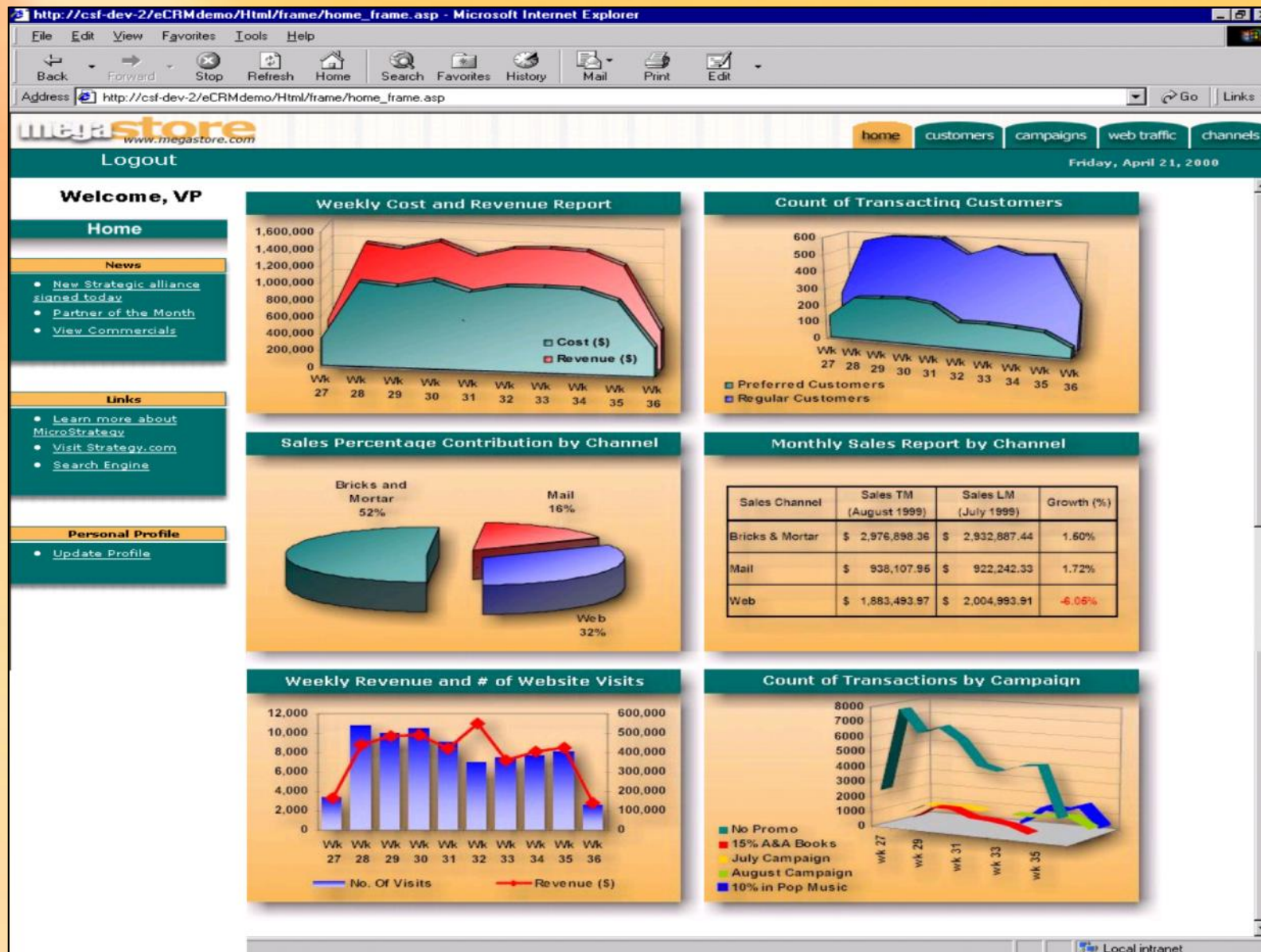
eCustomer

- Acquisition
- Loyalty
  - **Guide**
  - Documents
  - Subscriptions
- Profitability
- Segmentation

Customer Loyalty - Step 2 of 3

1 — 2 — 3   **Subscribe**

The profit margin for both preferred and non-preferred customers is essentially the same. Because of their numbers, non-preferred customers are responsible for the majority of revenue. On a per customer basis, though, preferred customers are responsible for more revenue. This suggests that the loyalty program could be more effective if more customers could be transformed into preferred-customers with increased levels of transactions, sales and revenue.

Customer Loyalty by Revenue & Profit Margin

Customer Loyalty by Avg. Revenue & Profit

Customer Loyalty and Profitability

Preferred Customer	Profit Margin (%)	# of Customers	Average Revenue per Customer	Revenue
No	26.62%	734	$ 1,824.15	$ 1,338,924.09
Yes	26.71%	272	$ 2,448.79	$ 666,069.82

megastore
www.megastore.com

home   customers   campaigns   web traffic   channels

Logout   Friday, April 21, 2000

eTraffic

- **Web Advertising**
   Guide
   Documents
   Subscriptions
- **Web Traffic Analysis**
- **Web Site**
   Performance

Report: Promo and Campaign Analysis

		Measures	Campaign Cost (All)	Click Through (%)	Sales ($)	ROI (Campaign)
Promotion Category	Promotion/Campaign	Referring Domain				
ADVERTISING	MicroStore for Everybody (August)	http://www.altavista.com	8,415	0.78%	1,565	-95.22%
		http://www.goto.com		1.54%	93,674	197.85%
		http://www.lycos.com		3.12%	47,414	53.11%
		http://www.altavista				-90.40%
		http://www.eurosee				-100.00%
		http://www.retailsleu				

Print ▶
Open in Excel

Drill ▶
Outline Mode
Totals ▶
✔ Details

Restore
Referring Domain Properties...
AutoFormat...

About MicroStrategy Grid

Drill Down ▶
Drill Up ▶
Drill Within ▶
Drill Across ▶

Promotion End Date
Promotion Start Date
Ad Banner
Search Keywords

Promotion/Campaign: « 18 »

File   Edit   View   Favorites   Tools   Help

Back   Forward   Stop   Refresh   Home   Search   Favorites   History   Mail   Print   Edit

Address   http://csf-dev-2/eCRMdemo/Html/frame/home_frame.asp   Go   Links »

megastore
www.megastore.com

home   customers   campaigns   web traffic   channels

Logout

Friday, April 21, 2000

eCampaign

○ Pre_Campaign
   Guide
   Documents
   Subscriptions
○ Current_Campaign
○ Post_Campaign

Campaign Design - Step 2 of 4

1 — 2 — 3 — 4   **Subscribe**

Market Basket Analysis can further aid in determining which products or product groups to offer as part of a special promotion. This type of report identifies all products that sell with a selected product (the study product). It also identifies how frequently each item was sold with the study product. By determining which products sell well together, it is easier to select items to include in a promotional campaign.

Report: Market Basket Analysis

	Measures	Attachment Rate (%)
Study Product Group	Product Group	
Pop	Art & Architecture	
	Business	
	Literature	
	Miscellaneous	
	Science & Technology	
	Sports & Health	
	Audio Equipment	
	Cameras	
	Computers	
	Miscellaneous	
	TV's	
	Video Equipment	
	Action	32%
	Comedy	22%
	Drama	16%
	Horror	20%

Print ▶
Open in Excel

Outline Mode
Totals ▶
Sort ▶   Ascending
✓ Details   Descending

Scroll Row Headings

Restore
Attachment Rate (%) Properties...
AutoFormat...

About MicroStrategy Grid

Study Product Group: ^ Pop « 44 »
Month: ^ Jul-1999 « 199907 »

Specialized CRM systems and integrated solutions

- Siebel
- SAP
- Oracle
- Baan
- Peoplesoft
- Microstrategy

- Microsoft CRM
- Microsoft Attain
- Microsoft Axapta
- SAS
- Remedy
- Goldmine

46

Axapta CRM main menu

AXAPTA CRM modules

- *(Sales Force Automation)*:
- Business relationships information (communication with sales partners, customers
- *Sales orders and quotes* information
- Preparing customer data according to their relationships to business areas, price quoted, processes or contacts
- Managing correspondence of business relationships
- Contact management- task management, their status

Business relationship definition

Business relationships

- It is the centralized place where you can find any information registered in Axapta about any business relationships filtering by any instances describing them: contact data, persons, etc.
- Business relationship window has three parts:
- Filter window
- Main area
- List area
- Menu button areas

AXAPTA CRM module functions

- *Sales Management* –information for effective management

- Graphic evaluation of marketing personnel members

- The ordering probability is computed, time forecast of probable orders is designed

- Real results are compared to forecasted

Sales Quote window

CRM quote preparation and transfer to orders

- Initial contact
- Confirmation of interest
- General evaluation
- Sending offer
- Preparation for negotiation in written or meeting
- Setting status: *("in progress")* allows editing. "Final" status includes archiving and non-editing modes
- As soon as relationship status meets order, the functional button allows to design order for sales

AXAPTA CRM modules

- **Marketing automatisation, telemarketing**
- Synchronization to Microsoft® Outlook® about contacts and meetings
- Each marketing worker has the individual *workbook* where his activities are registered
- *Not complex business prospects* evaluation tool
- *Mailing list* creation, Microsoft® Word *bookmarks*

Managing correspondence

SAP integrated system: CRM module

Module is composed of various functional blocks.

mySAP Customer Relationship Management - Enterprise					
Marketing	Marketing Planning	Customer Segmentation	Campaign Management	Trade Promotion Management	Lead Management	Personalization
Sales	Sales Planning & Forecasting	Territory Management	Account & Contact Management	Activity Management	Opportunity Management	Quotation & Order Management	Contract Management & Leasing	Incentive & Commission Management
Service	Service Planning & Forecasting	Customer Service & Support	Resource Planning & Optimization	Service Operations Management	Professional Services
Analytics	Customer Analytics	Product Analytics	Marketing Analytics	Sales Analytics	Service Analytics	Interaction Channel Analytics

Analytic scenarios

Analytic scenarios- multi purpose analysis

- Customer analysis – value analysis per customer
- Product analysis – observation of product, promotion optimization
- Communication channels – analysis of regular and e-channels
- Marketing analysis- allows to select new markets. Cross-sell scenario design
- Sales analysis – extensive reports "win or lose" analysis for competitive evaluation
- Customer oriented business management by differentiating approaches to customers

Structure of analytics scenario
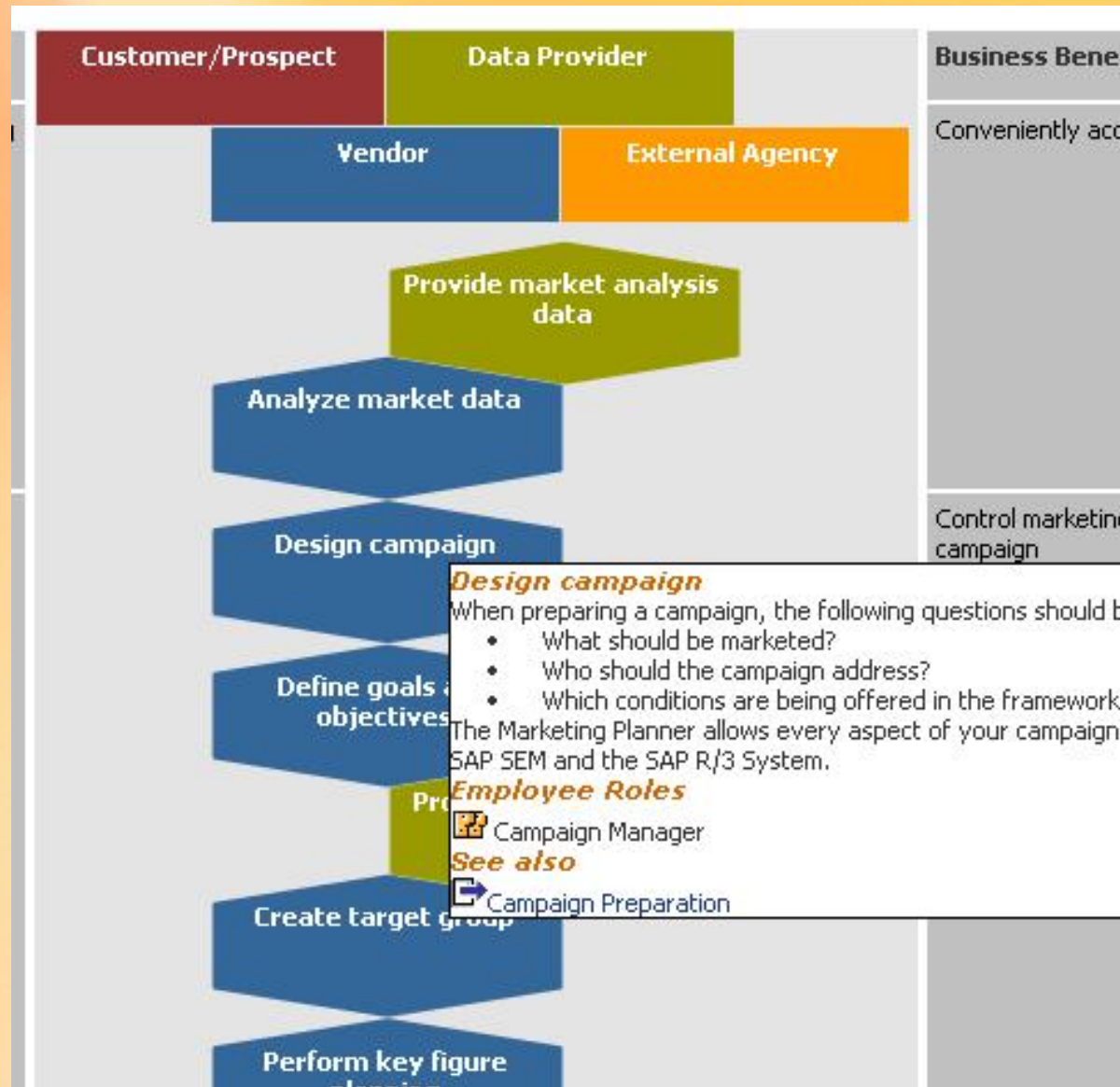
"Best practice" application in SAP

Customer	Vendor	Business Benefits	Value Potentials
		Reduced transaction costs	Up to 95%***
Browse catalog			
Compare products			
Configure products		Decreased number of service calls	Up to 75% of calls involve produc features, price, availability, order
Add products to shopping basket			
	Check availability		
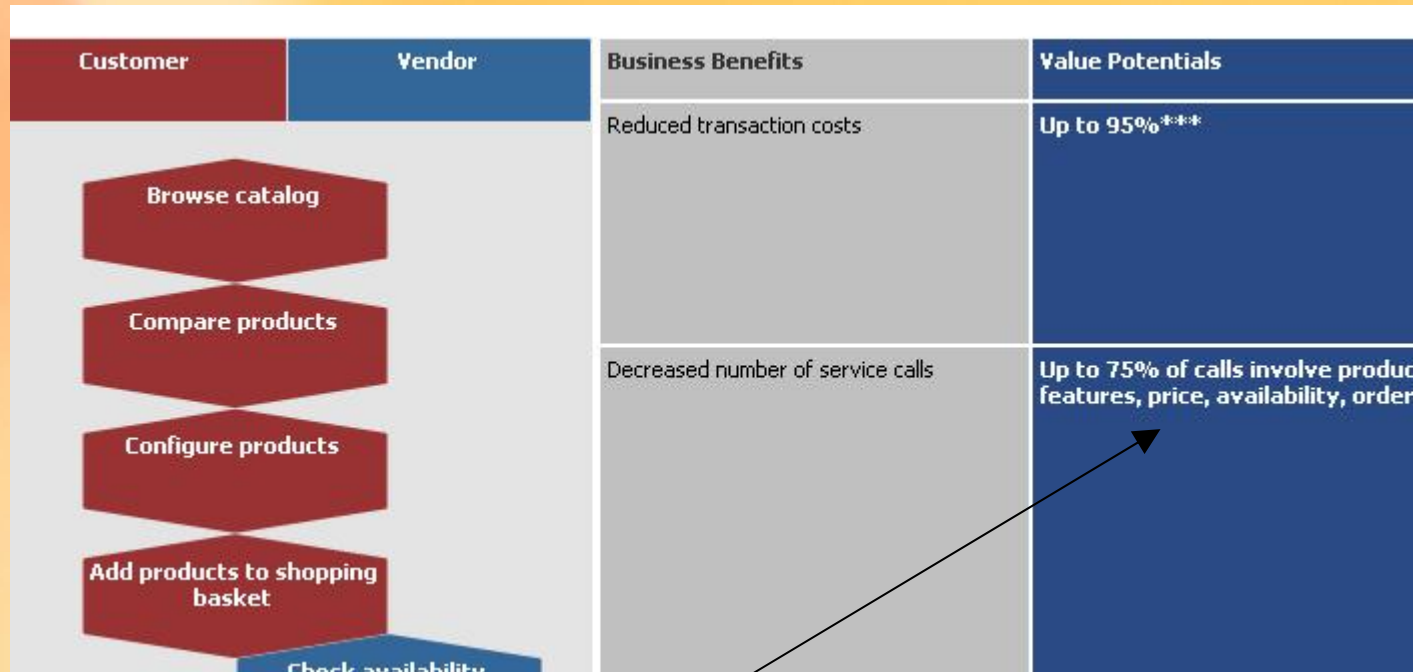
- The analytic scenarios idea is to evaluate them at all enterprises which implemented SAP solutions. Successful scenarios are standardized and implemented. Benchmark of scenario effectiveness is provided

CRM tasks related to social media analytics- new source for deriving value indicators
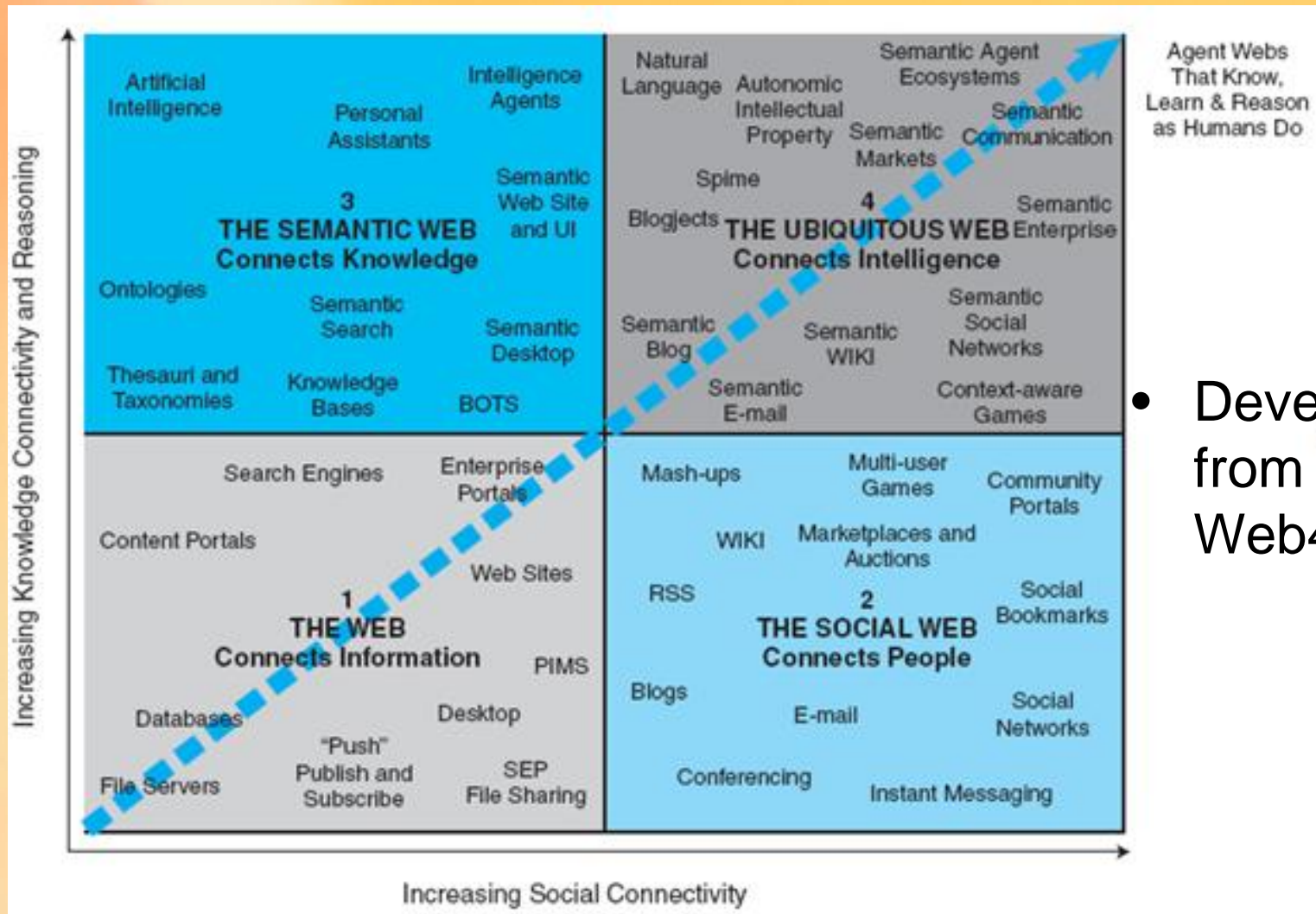
- Development from Web1.0 to Web4.0

Social networks: nine most popular (2010)

EXHIBIT 9.5 **Top Nine Social Networking Web Sites**

Site	Users
MySpace	253,145,404
Facebook	140,000,000
Windows Live Spaces	120,000,000
Friendster	90,000,000
hi5	80,000,000
Orkut	67,000,000
Classmates.com	50,000,000
Bebo	40,000,000
LinkedIn	30,000,000
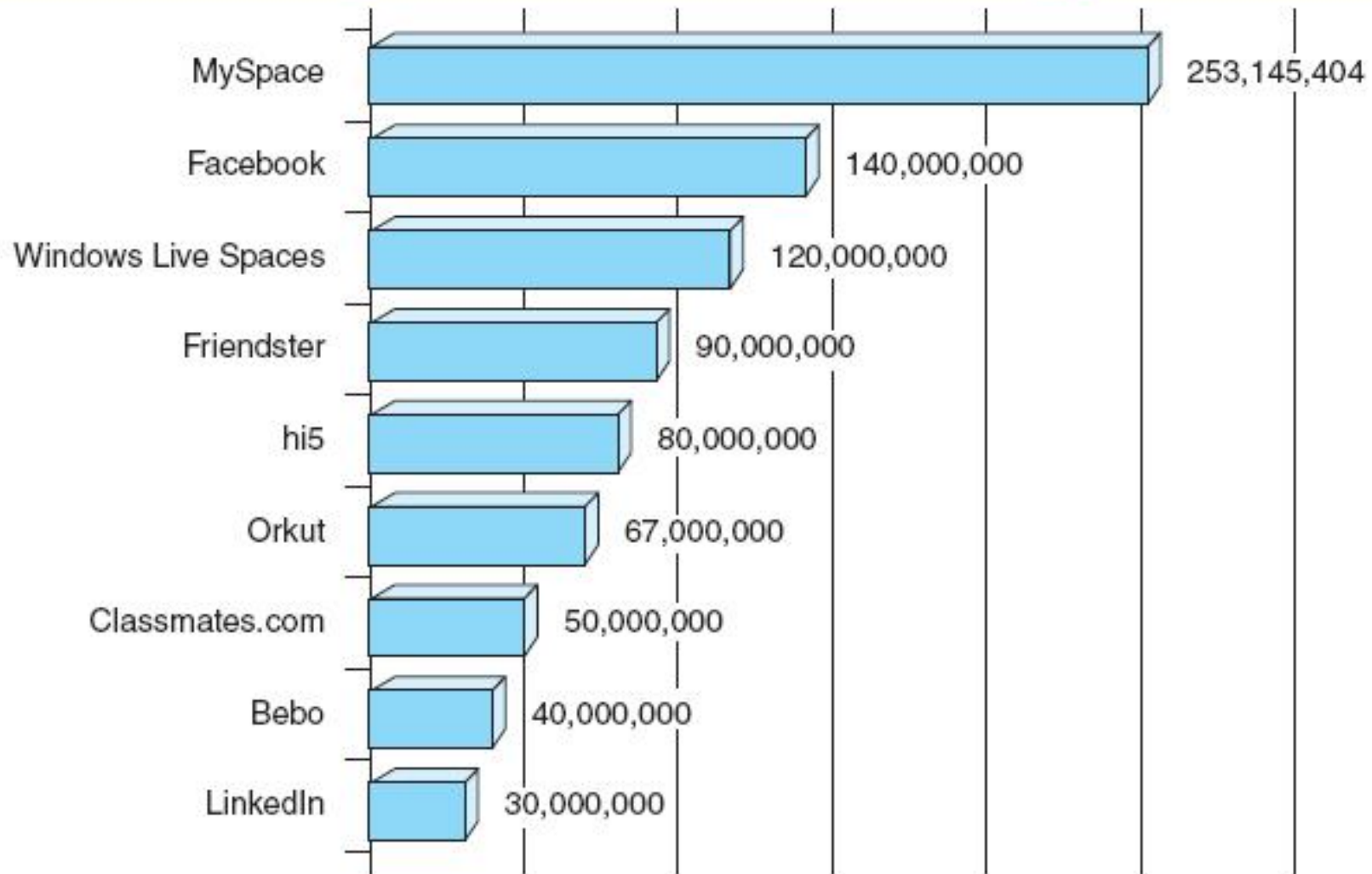
The Web 2.0 characteristics:
Social Media, and Industry Disruptors

- The ability to tap into the collective intelligence of users

- Data is made available in new or never-intended ways

- Relies on user-generated and user-controlled content and data

- Lightweight programming techniques and tools let nearly anyone act as a Web site developer

- The virtual elimination of software-upgrade cycles makes everything a *perpetual beta or work-in-progress and allows rapid prototyping*

EXHIBIT 9.1 The Emergence and Rise of Mass Social Media

People — Online Sofware Clients — Direct Web Servers & Services — Data

- identity
- mutual sense of community
- participation

Web 2.0 Site A Ajax Client — REST → Site A's Web Services

Web 2.0 Site B HTML Client — HTTP

Web 2.0 Site C Flash Client — HTTP → Site B's Web Server — JSON

Mashup D Ajax Client

Mashup E Flash Client — SOAP → Site C's Web Services

Web Service — Database, Database

Commercial and User-Generated Content

Web Service

Public Edge of the Enterprise

Web Service

Database

Information "Cloud"

The "truthiness" barrier: Uncertain ownership and data provenance past this point

63

EXHIBIT 9.2 Web 2.0 Architecture of Participation

Traditional Media

Television

Movies

Media Outlets

Does old media Matter?

Radio

Print

observe

centralized mediation

publish

push

distributed mediation

Us

network effects

Social Consumption
via comments, trackbacks, IM, feedback, etc.

pull

Social Media

Syndication

Podcasts

network edge

Blogosphere
empty center

Vlogs

Forums

Wikis

Enterprise 2.0 Platforms

Institutional Control

Shift

Consumer Control

64

Online Social Networking: Basics and Examples

New Business Models

social network analysis (SNA software)

The mapping and measuring of relationships and information flows among people, groups, organizations, computers, and other information- or knowledge-processing entities.

The nodes in the network are the people and groups, whereas the links show relationships or flows between the nodes. SNAs provide both visual and mathematical analyses of relationships

Business and Enterprise Social Networks

- **social marketplace**

  The term is derived from the combination of *social networking* and *marketplace.* An online community that harnesses the power of one's social networks for the introduction, buying, and selling of products, services, and resources, including one's own creations. Also may refer to a structure that resembles a social network but is focused on individual members

Commercial Aspects of Web 2.0 and Social Networking Applications

- Consumers can provide feedback on the design of proposed or existing products etc.

- Word-of-mouth (*viral marketing) is free advertising*

- Increased Web site traffic brings more ad dollars

- Increased sales can come from techniques based on personal preferences such as collaborative filtering

CRM in virtual community
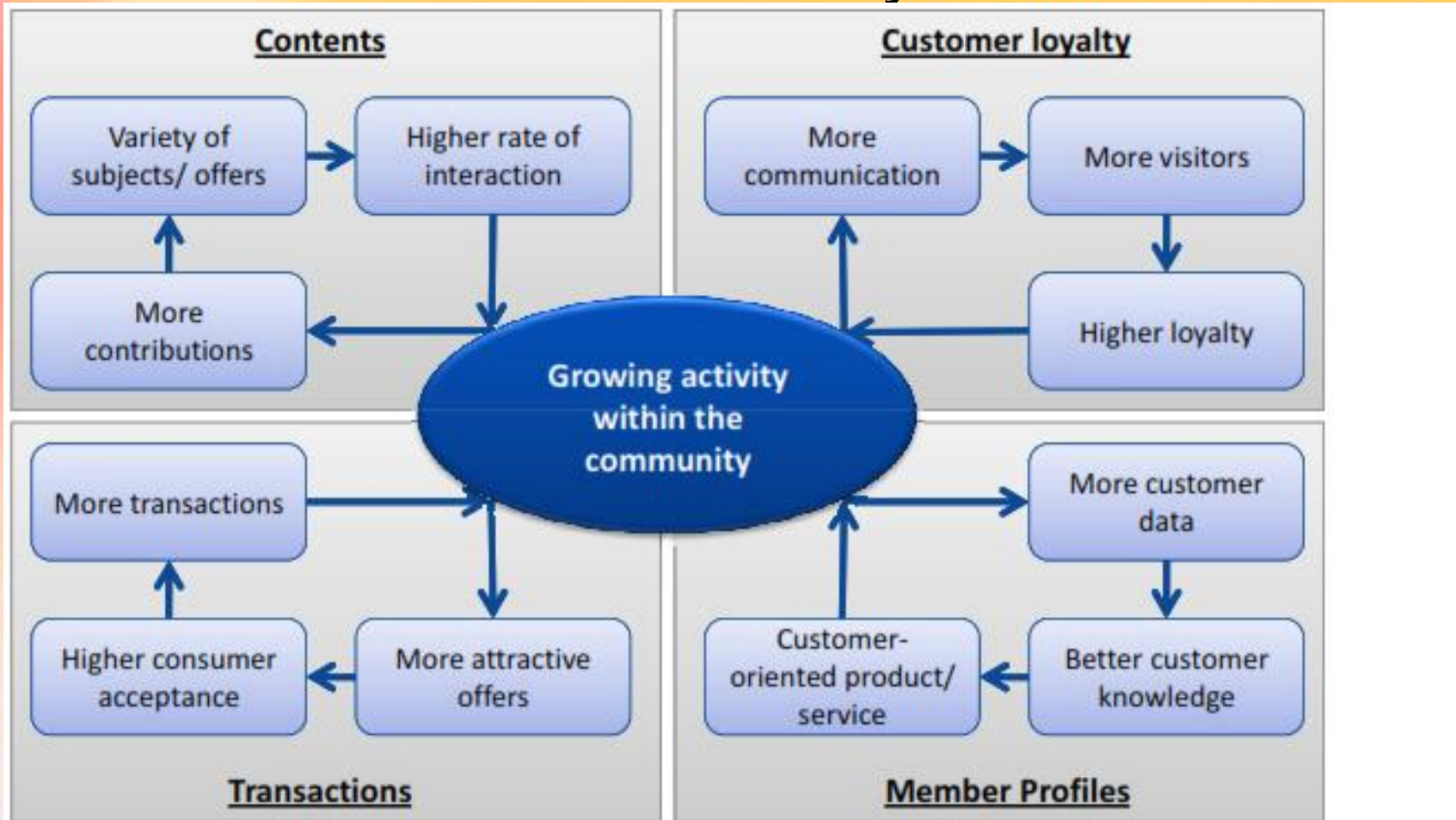
Source: own illustration adopted from Powarzynski 15

Web 2.0 data types

- Rating
- Tagging
- Forum content
- Blog
- E-newsletter
- Video materials
- Competitions
- Search engine analysis
- Shopping in social networks
- Feedback from customers: conversational marketing

Advertising using social networks, blogs

- Viral (Word-of-Mouth) Marketing done by bloggers
- Classified Ads, Job Listings, and Recruitment
- Special Advertising Campaigns
- Mobile Advertising

EXHIBIT 9.7 **Generating Revenue from Web 2.0 Applications**
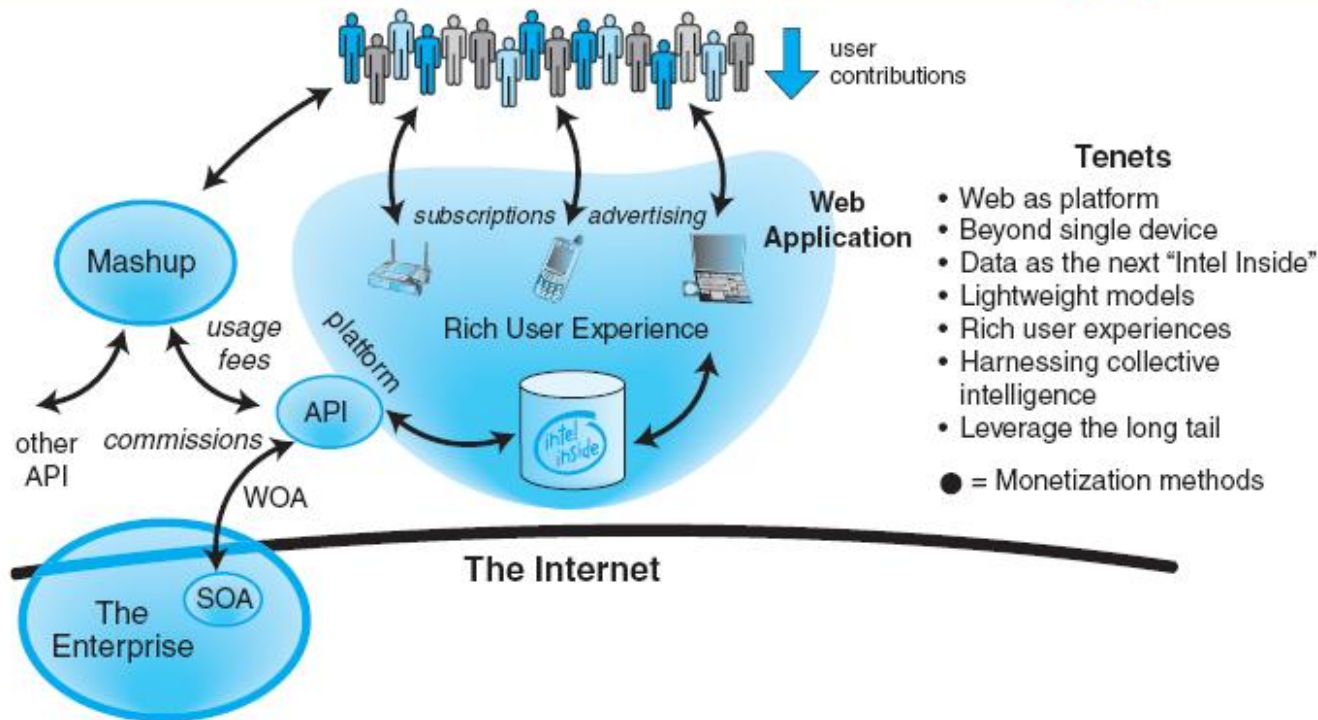
The Future: Web 3.0 And Web 4.0

- **Web 3.0:**   A term used to describe the future of the www. It consists of the creation of high-quality content and services produced by gifted individuals using Web 2.0 technology as an enabling platform

- **Semantic Web:**   An evolving extension of the Web in which Web content can be expressed not only in natural language, but also in a form that can be understood, interpreted, and used by intelligent computer software agents, permitting them to find, share, and integrate information more easily

- **Web 4.0:**   It is still an unknown entity. However, it is envisioned as being based on islands of intelligence and as being ubiquitous

Blog record preparation for analysis

Internet pages analysis: data preparation

Welcome!

I am a PhD student at the **Vrije Universiteit** at the **Knowledge Representation and Reasoning** group of the AI Department and the **Communication Sciences** department of the **Faculty of Social Sciences**. My supervisors are **Frank van Harmelen** (AI) and **Jan Kleinnijenhuis** (FSS).

I am also co-founder of **2AT**, an IT-company in consultancy and on-demand software development.

This website is made using a minimal amount of javascript to create sane resizing behaviour and "clean" (x)html and css. If you know a way to replicate the resizing behaviour without javascript, or if the site looks weird in your browser, please let me know.

This website is best viewed with an expensive monitor and a free browser.

Link to webpage of another researcher

Co-occurrence of names

Hot to use ontologies

- By interlinking information from various sources, it is possible to define if "the person knows book author"
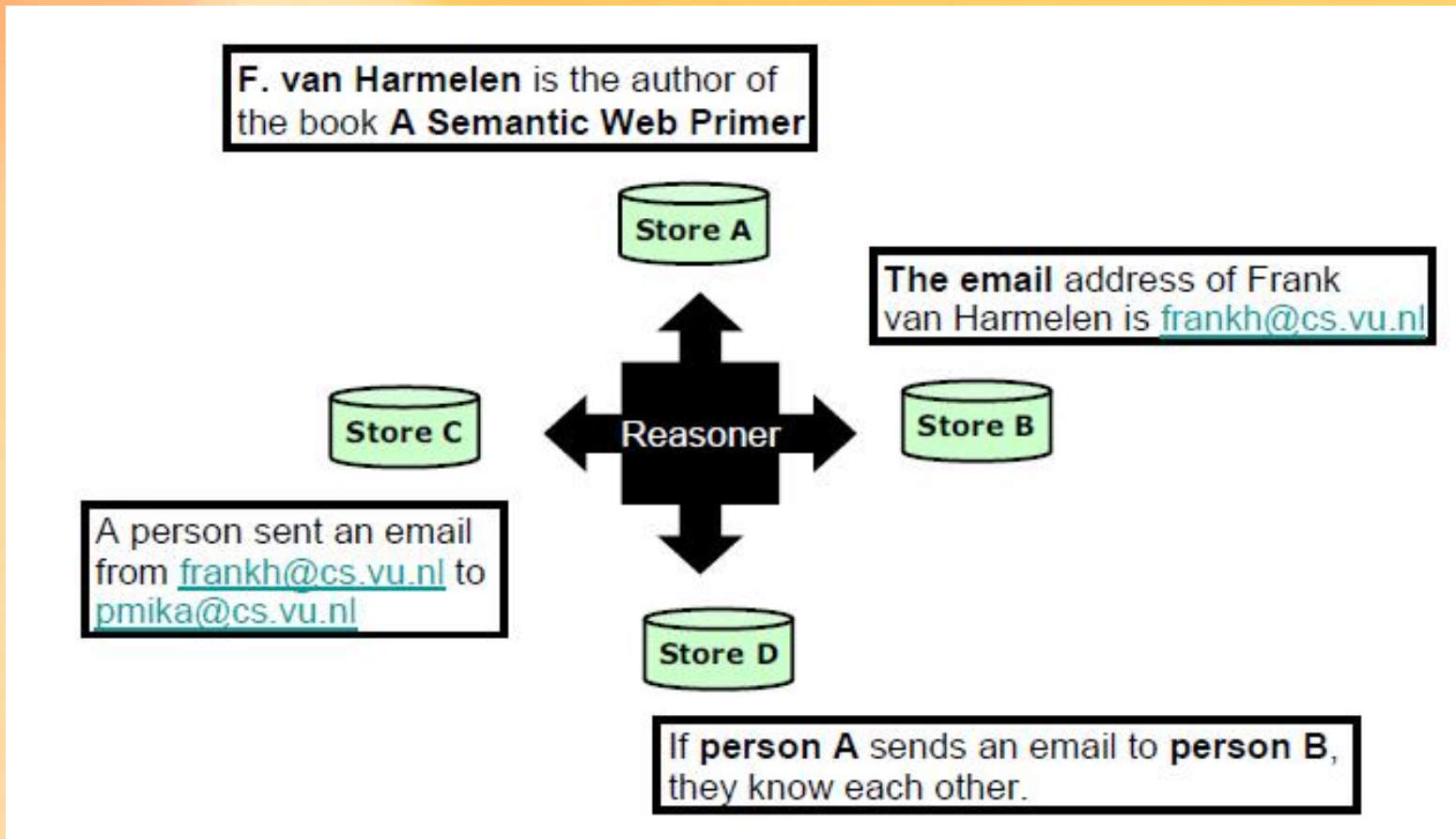
Links among individuals and their types
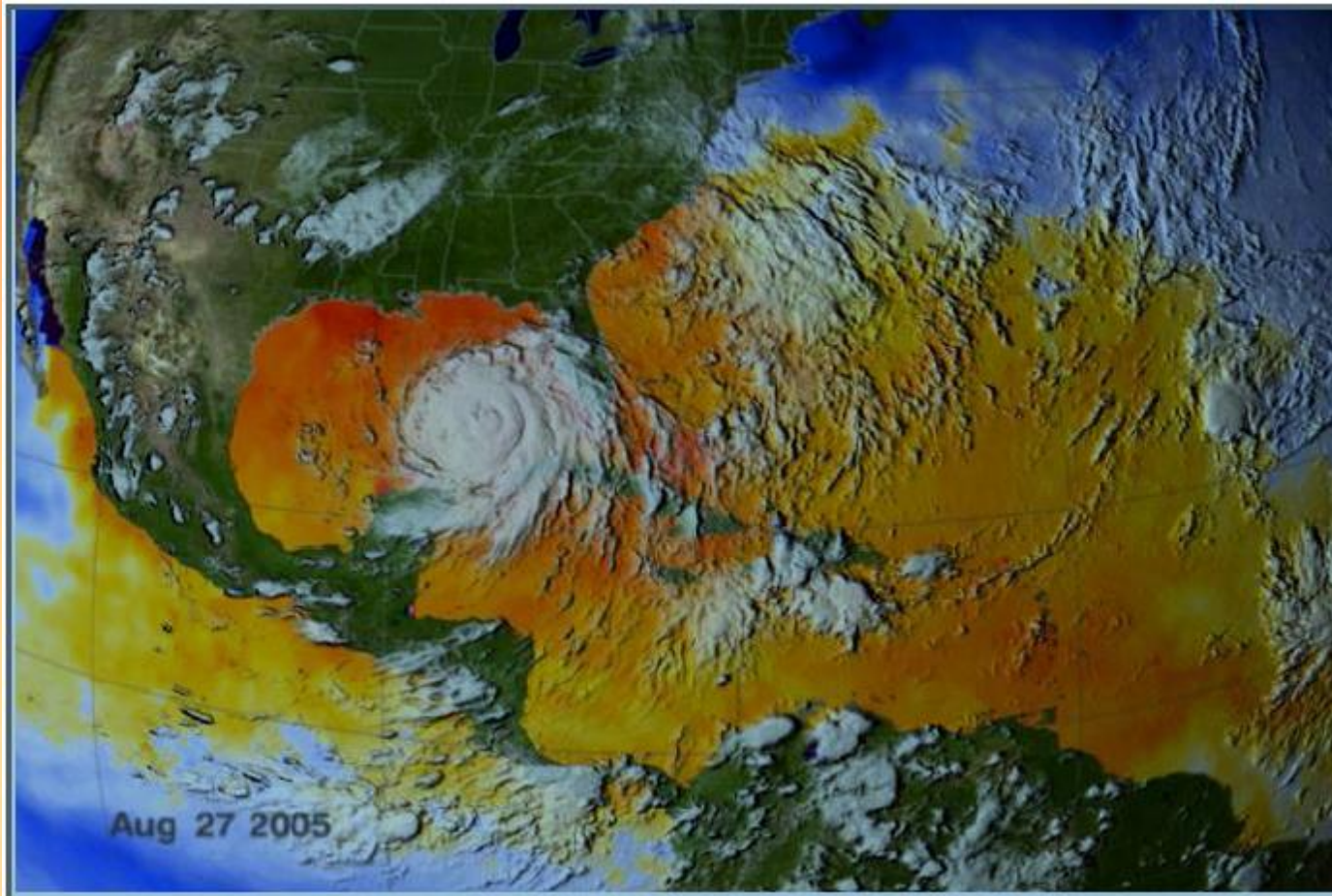
Internet query analytics
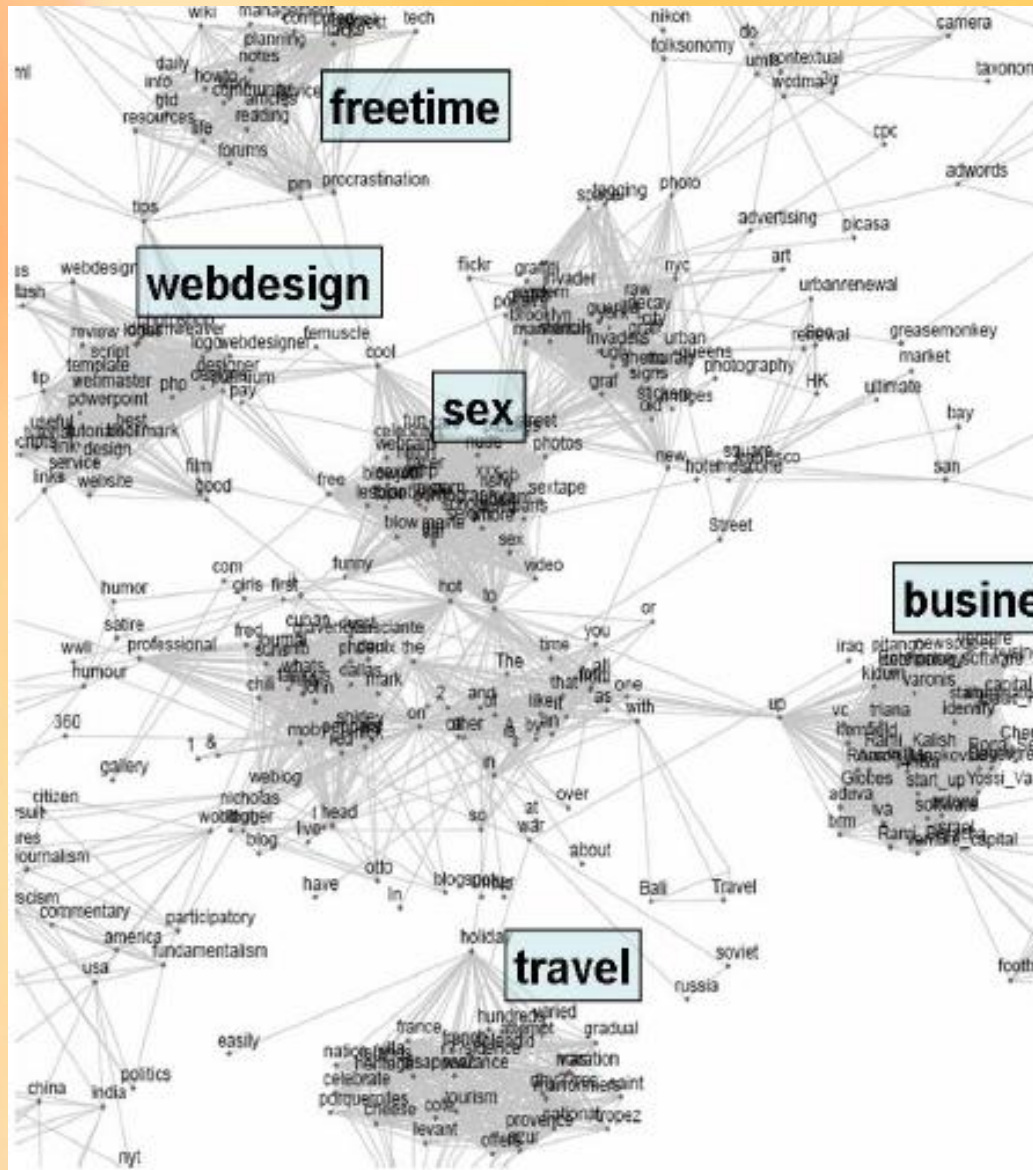
- Grouping by topics
- Defining group sizes
- Detailed information of the query success
- The suitable formats and algorithms for queries can be designed

How it spreads when in need: Katrina PeopleFinder

Aug 27 2005

Hurricane 2005

1.1 M people were on search

Blogger initiative for search

PeopleFinder Information Format PFIF system was implemented during 24 hrs

Peoplefinder query sample

Project scope

- 7,000 records on Sunday. 50,000 records on Monday evening
- 4000 volunteers
- Total 640,000 records
- ShelterFinder – other project where all shelters for people were registered
- Katrina PeopleFinder project data was passed to Google and used together with American Red Cross and Microsoft for finding people
- Project is now closed for preserving sensitive data
- The processes can be transferred from non-profit to the commercial area for analysis of referral information

Assignment 2

Tools &software: Sugar CRM, MS Excel pivot module, *Statistica* advanced models, *Viscovery SoMine*

2nd team assignment and lab work training:

- *Operational CRM* (Sugar CRM)

- *Analytical CRM* (CRM performance analysis by applying business intelligence approaches (pivoting, visualisation) and computational intelligence methods (neural networks, fuzzy rules, Kohonen self organizing networks)

Assignment 2 – Task description

- The data file for analysis CRM_data_for_analysis.xls
- The task description is in file 2_assign_CRM_task.pdf
- The outcome – report, Excel data file with pivot analysis and final data table for computational analysis
- In part 4 the task is further developed by analysis while applying Statistica and Viscovery software tools

Literature

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