Opinion Mining in Tourism: an Emotional Tagging and Affective Representation Technique for Analyzing Customer Response

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☐ User Generated Content explosion in the Mobile Web

☐ Analyze Customer Response – Opinion Mining

☐ Sentiment Analysis Systems

☐ Considering emotional bonding and affective representation

☐ Empirical analysis on a new online emotion sharing service

    ☐ A framework for assessing Emotions

    ☐ An instrument for collecting smart marks (smarks): MySmark

    ☐ Primary data collection - "Il Canaletto" (Venezia) – emotional journey

    ☐ online data collection - website, social, newsletter – "velaclub"

☐ Working in progress – extension to Education – "moodle"

December 25, 2006 / January 1, 2007

☐ **Marketers** need to analyze Internet forums, discussion groups, and blogs to gather data on customer satisfaction.

☐ **Customers** check out product reviews on the Web which give opinions of existing users of the product/service.

Huge explosion of UGC in Mobile Web

What do they like ?   What do they want ?

Things that happen in 60 seconds
Source: go-gulf.com 1 June, 2011 - version 2 six months later

☐ Analyze timely feedback about products, services, actions.

☐ Monitor reputation of companies, organizations.

☐ Analyze opinions beliefs, views, sentiment expressions about specific entities.
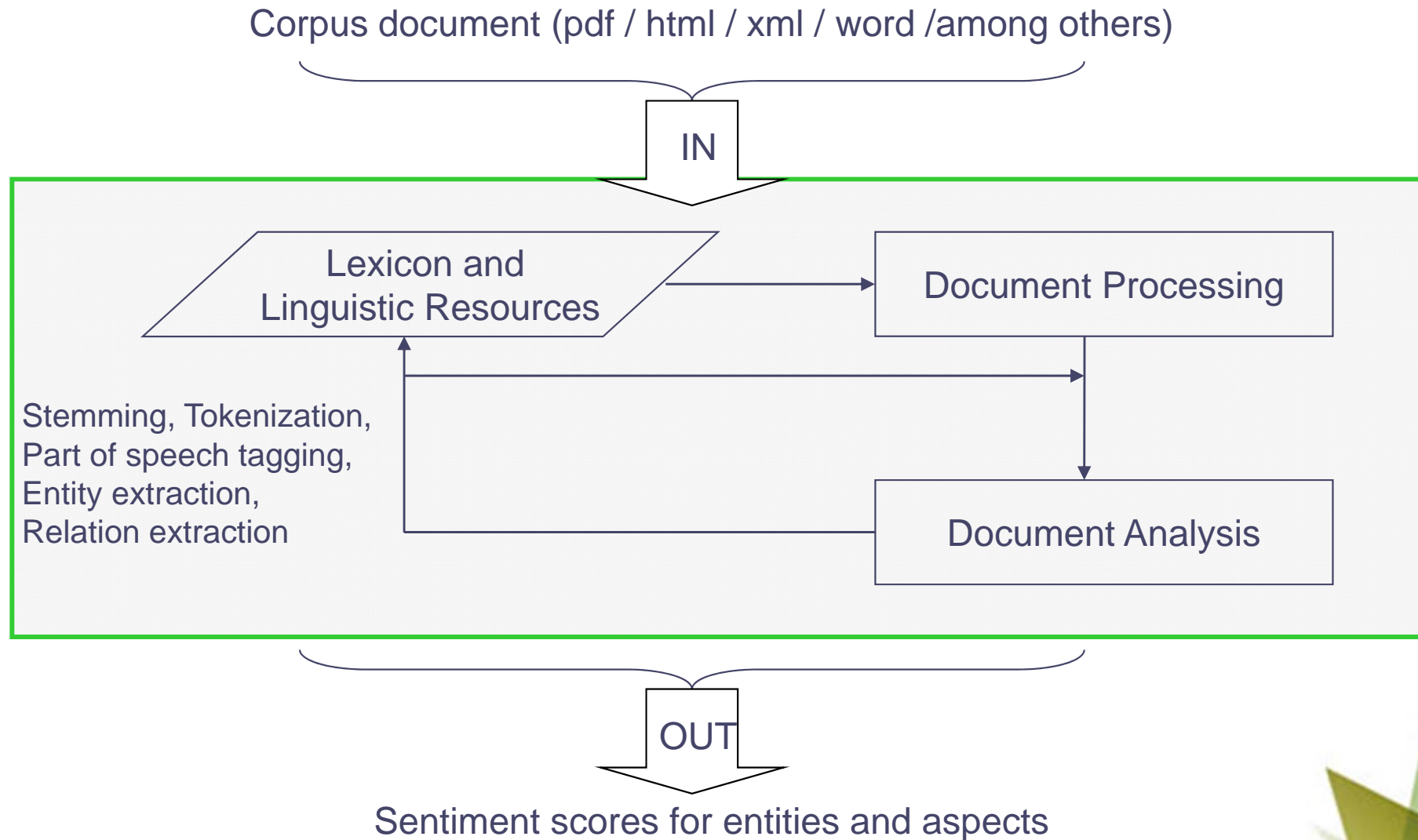
Big Data

Real-time analysis

Sentiment analysis

"Sentiment analysis represents a systematic computer-based analysis of written text or speech excerpts for extracting the attitude of the author or speaker about specific identities or topics. It provides a fine-grained examination that aims to establish the overall orientation (positive or negative) and intensity (weak or strong) of the sentiments expressed by statements". (Pang and Lee, 2008 cited in Stieglitz and Dang-Xuan, 2013)

☐ Try to infer people's sentiments based on their language expressions.

☐ Provide sentiment score for the whole review analyzed as well as analyze the sentiment of specific aspects emerged.

☐ The system classify sentences in positive-neutral-negative.

☐ Not active role of user in the inferring process.

Sentiment Analysis Systems

Corpus document (pdf / html / xml / word /among others)

IN

Lexicon and Linguistic Resources → Document Processing

Stemming, Tokenization,
Part of speech tagging,
Entity extraction,
Relation extraction

Document Analysis

OUT

Sentiment scores for entities and aspects

Source: adapted from Feldman, 2013, p. 84.

Sentiment Analysis Systems

☐ Document-level sentiment analysis ⟨ supervised learning **classification algorithms**

unsupervised learning **Semantic orient. avg >threshold**

☐ Sentence-level sentiment analysis (assumption to know the entity discussed)

supervised approach – 2 classes

☐ Aspect-based sentiment analysis (identification of aspects – valuable informat.)

Noun phrases freq > experim. threshold

☐ Comparative sentiment analysis (comparative opinions)

Filtered with naïve Bayesan. Class sequential rule algo.

☐ Sentiment lexicon acquisition

Graph of adjectives created using linguistic connectors

Key measures of customer response

- **Cognitive response**
  Awareness – Saliency – Familiarity – Recall – Recognition – Knowledge – Perceived Similarity.

- **Affective response**
  Attitude – Consideration – Affinity – Esteem – Relevance – Preference – Intention to buy – Perceived value – Differentiation.

- **Behavioural response**
  Fact-finding behaviour – Trial purchase – Repeat purchase – Share of category requirement (exclusivity) – Loyalty – Bonding – Satisfaction/dissatisfaction

  (source: Lambin, 2008)

"An emotion is not simply a feeling state. Emotion is a complex chain of loosely connected events that begins with a stimulus and includes feelings, psychological changes, impulses to actions and specific, goal-directed behaviour. That is to say, feelings do not happen in isolation. They are responses to significant situations in an individual's life, and often they motivate actions".

*(*Plutchik R., 2001, p 345, The Nature of Emotions, American Scientist, 89: 344-350*).*

Affective attributes of **user experience** seem to trigger
cognitive involvement in terms of attention and participation,
and are determinants of information sharing behaviour, virality, net-promoter-score.

Exploring hybrid sentiment analysis technique

Direct / explicit

**Fast computing**

User focused

Questions:

Can emotional-tagging empower a better customer satisfaction evaluation on products and services and enrich the assessment of multi-stakeholder perceptions in a city or a destination ?

Does emotional-tagging provide scenarios for online personalised recommendation system for tourism services?

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A circumplex model of emotions
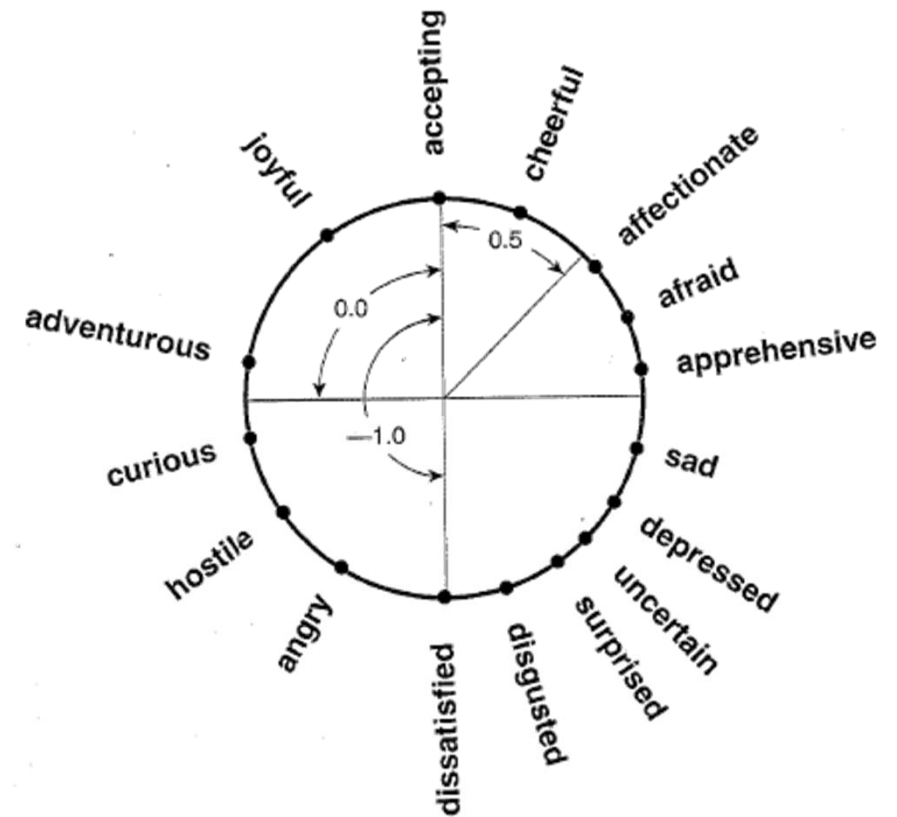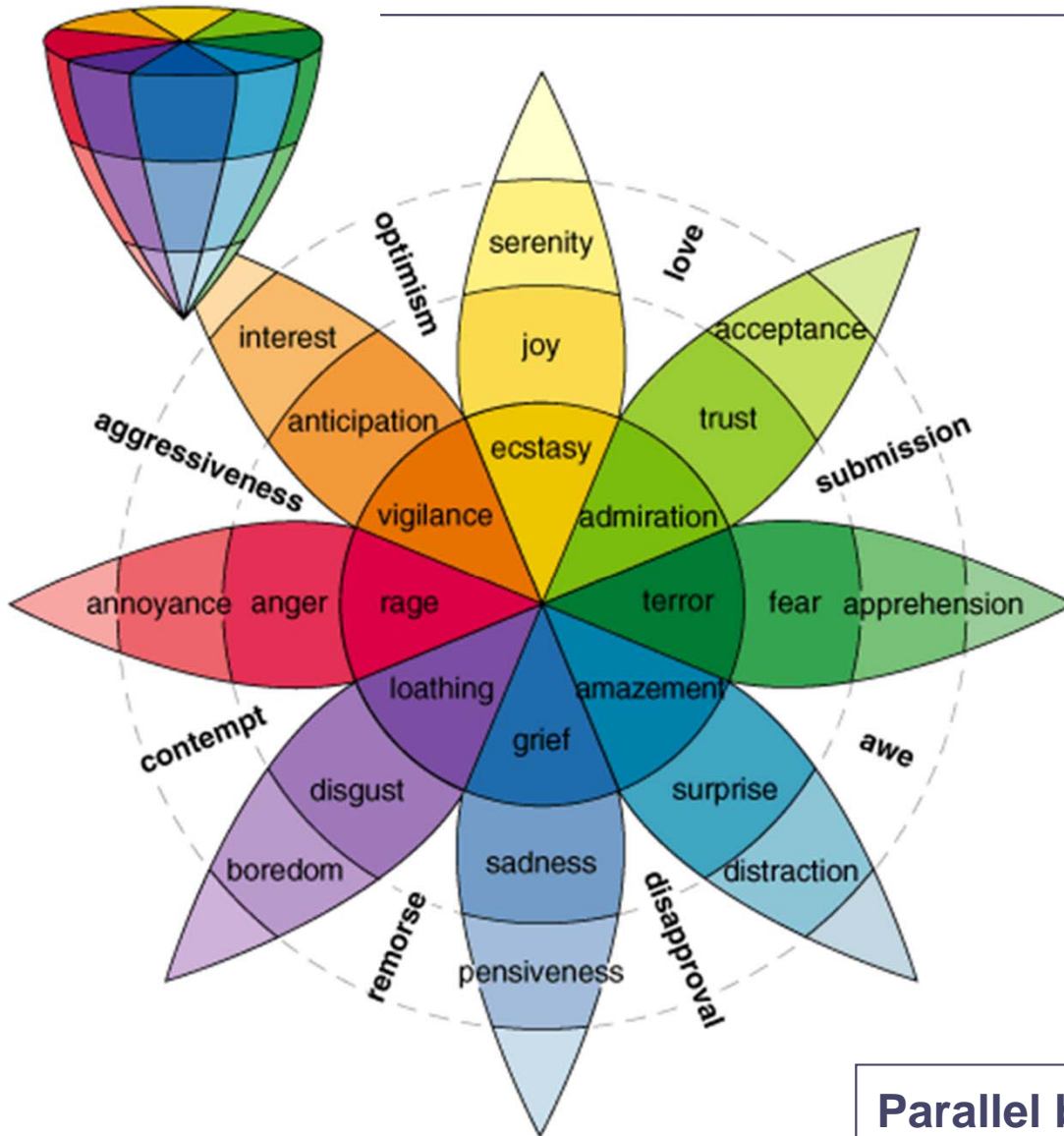
Empirical angular locations
(Plutchik, 2001, p 349)

Parallel between emotions and colours
William McDougall, 1921

Eight primary emotion dimensions.
(Plutchik, 2001, p349 inspired on Schlosberg, 1941)

online emotion sharing behaviour

e-Tagging

Like

What do you feel?

Your comment...

Smark!

MySmark is a professional marketing tool
improving the quality of data obtained from
people who use product and experience service.
It aims to create an emotional engagement with customers.

MySmark

Rose of Emotions

1 petal = 1 e-tag

Users can create their personal
Rose of Emotions

Unit of real-time user experience

Smark = smart mark (e-tag + empathy)

Usually feels:

Recently felt:

A marketing tool for collecting emotions

User **Personality Test** **Emotion Profile**
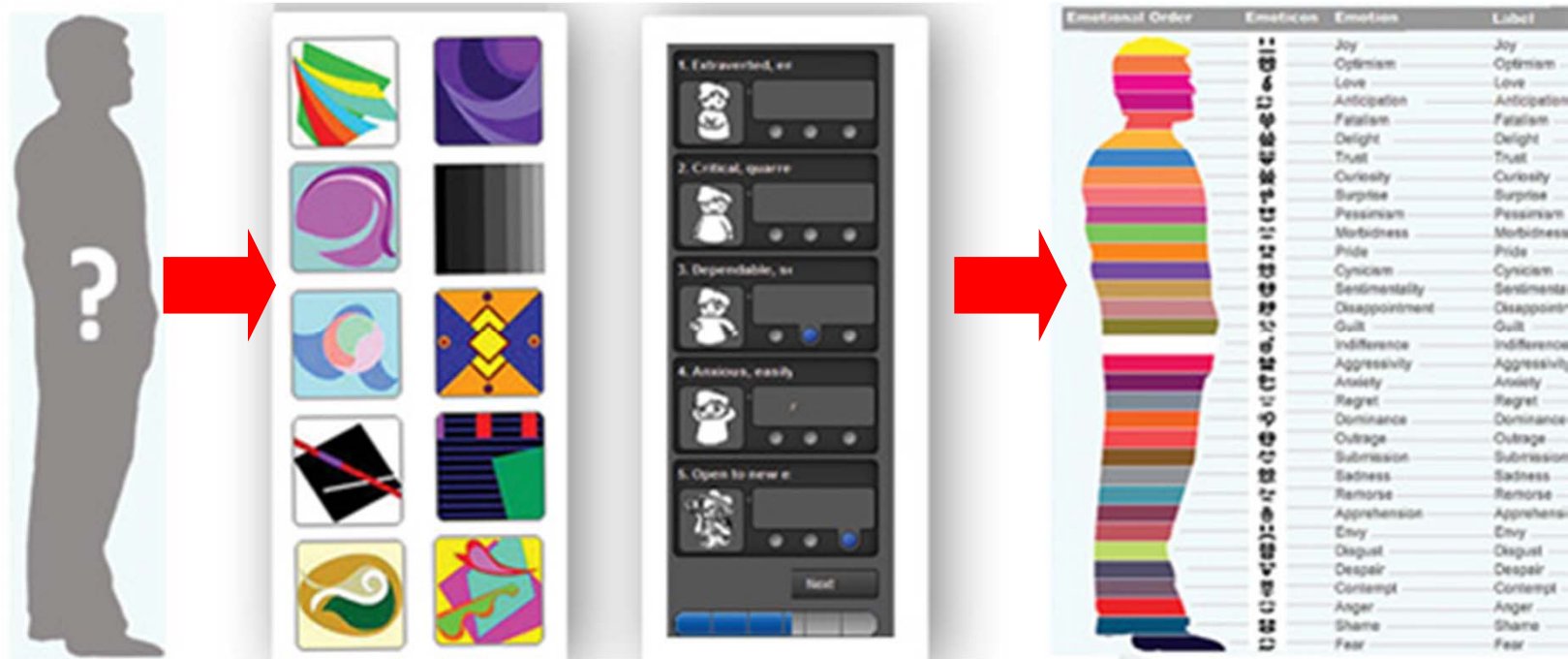
Emotional Tagging
Mapping of personal satisfaction levels into segments of personality
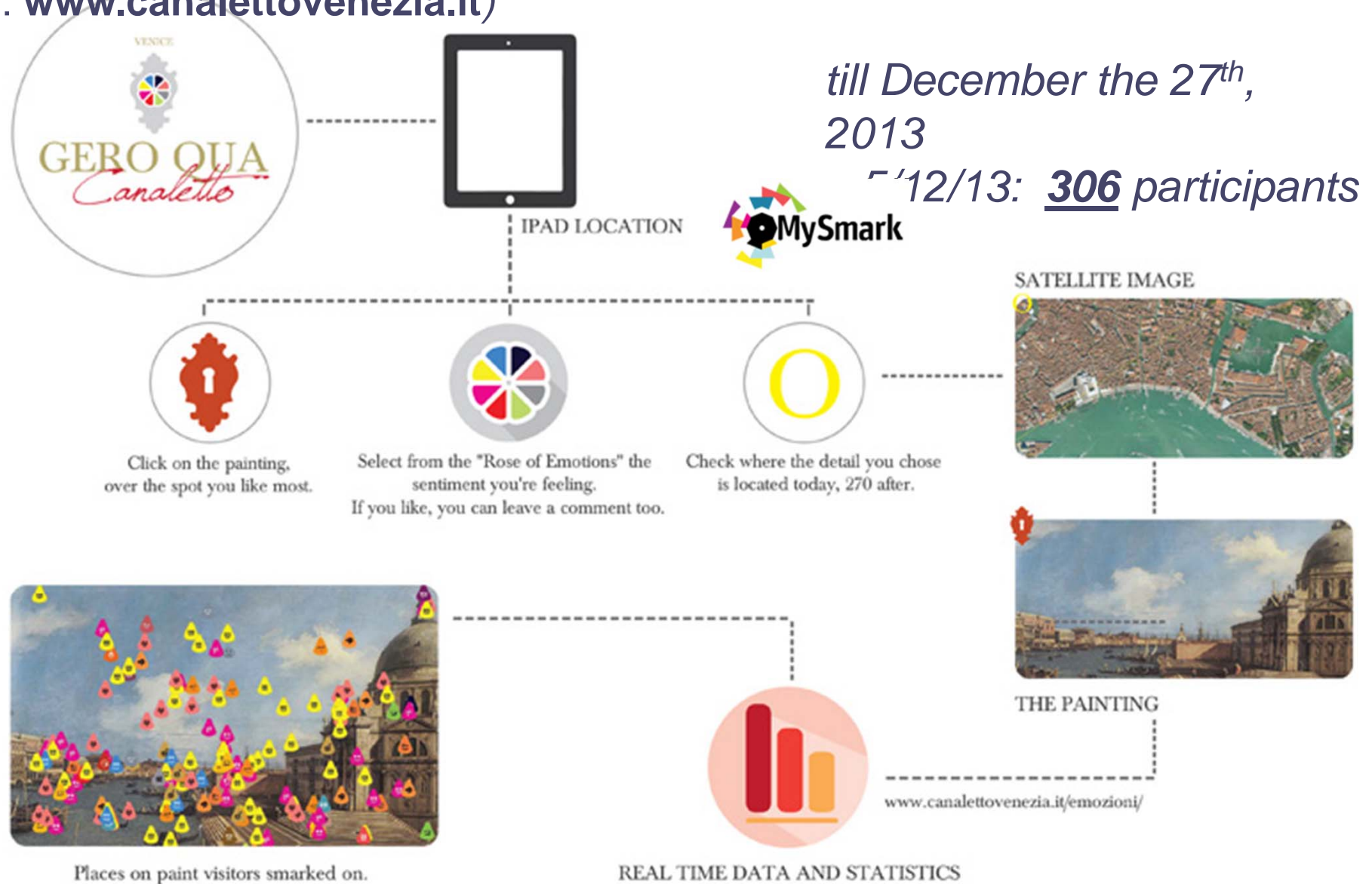emotional comments collected + emotion profile

"L'entrata nel Canal Grande dalla Basilica della Salute"
(Canaletto, Abbazia San Gregorio Venezia).

"More than an exhibition this is an emotional journey".
(source: **www.canalettovenezia.it**)

till December the 27th, 2013

5'12/13: **306** participants

Click on the painting, over the spot you like most.

Select from the "Rose of Emotions" the sentiment you're feeling.
If you like, you can leave a comment too.

Check where the detail you chose is located today, 270 after.

SATELLITE IMAGE

THE PAINTING

Places on paint visitors smarked on.

REAL TIME DATA AND STATISTICS

www.canalettovenezia.it/emozioni/

"tecnologia digitale per interagire con l'opera del Canaletto tramite smartphone e iPad" (corrieredelveneto 22/11/2013)

CULTURA

Al via le prove tecniche di turismo emozionale 2.0

Attraverso un'interfaccia, denominata MySmark, il sito permette di fornire un feedback degli utenti

OPEN DATA

L'algori nell'arc

Multi-channels data collection. December 2013 – January 2014

Different digital "touch points".

- ☐ Web site widgets

  - ☐ One smark for each sections

  - ☐ One smark for each course

- ☐ Social media – facebook page

Generic users

- ☐ Newsletter – December promotions

- ☐ Personalized email for post-activity feedback

Contact Lists

MySmark EDU plugin for moodle

A platform for the analysis of student satisfaction through emotional tagging. It allows students to leave feedbacks on Moodle events using MySmark's emotional tags.

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        Communications of the ACM, 56 (4), 82-89.

Kechaou, Z., Ammar, M.B., Alimi, A.M. (2013). A Multi-Agent based system for sentiment
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Pang, B. and Lee, L. (2008). Opinion mining and sentiment analysis.
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Stieglitz, S., Dang-Xuan, L. (2013) Emotions and Information Diffusion in Social Media –
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        Journal of Management Information Systems, Spring, 29 (4), 217-247.

Plutchik, R.(2001) The Nature of Emotions.
        American Scientist 89 (4) 344-350.

Thank you

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