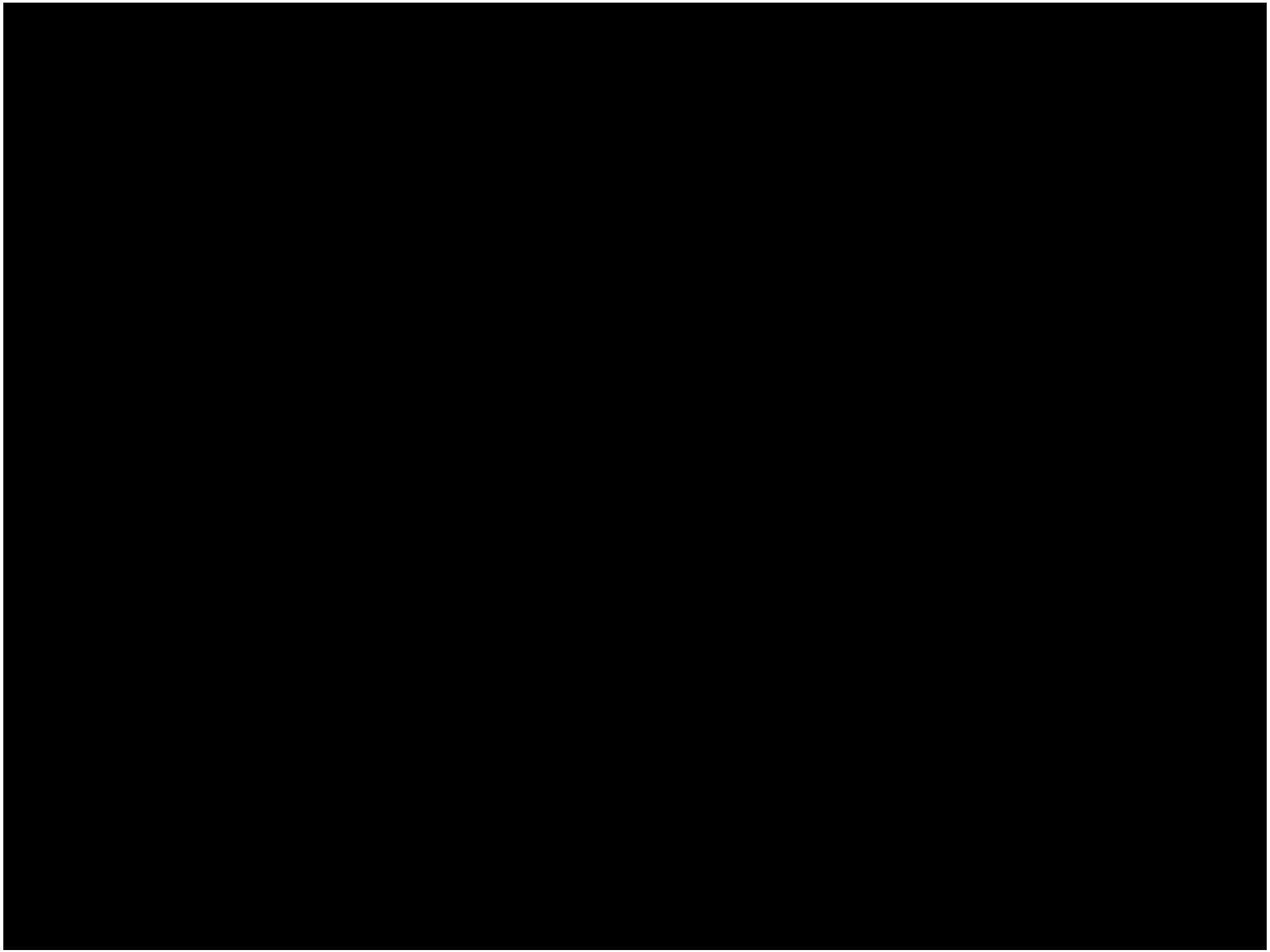


Prof. Cesare Massarenti

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5 March 2010

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René Magritte*, La trahison des images*, 1928-29.

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Most often things are not what they seem to be.

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A WORLD IN TRANSITION

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FILM VIDEO PRINT

COMPUTER

SIGNAGE MOBILE DEVICES

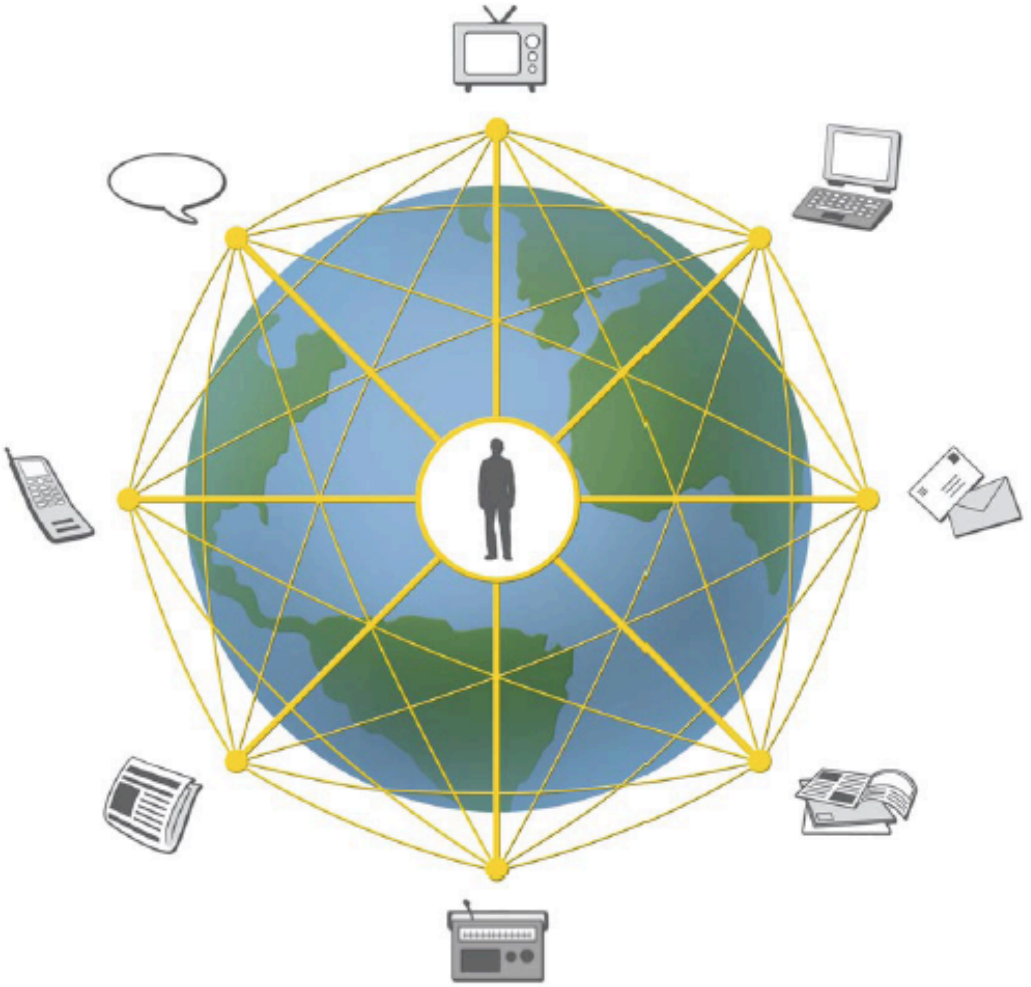
ONE WORLD ?

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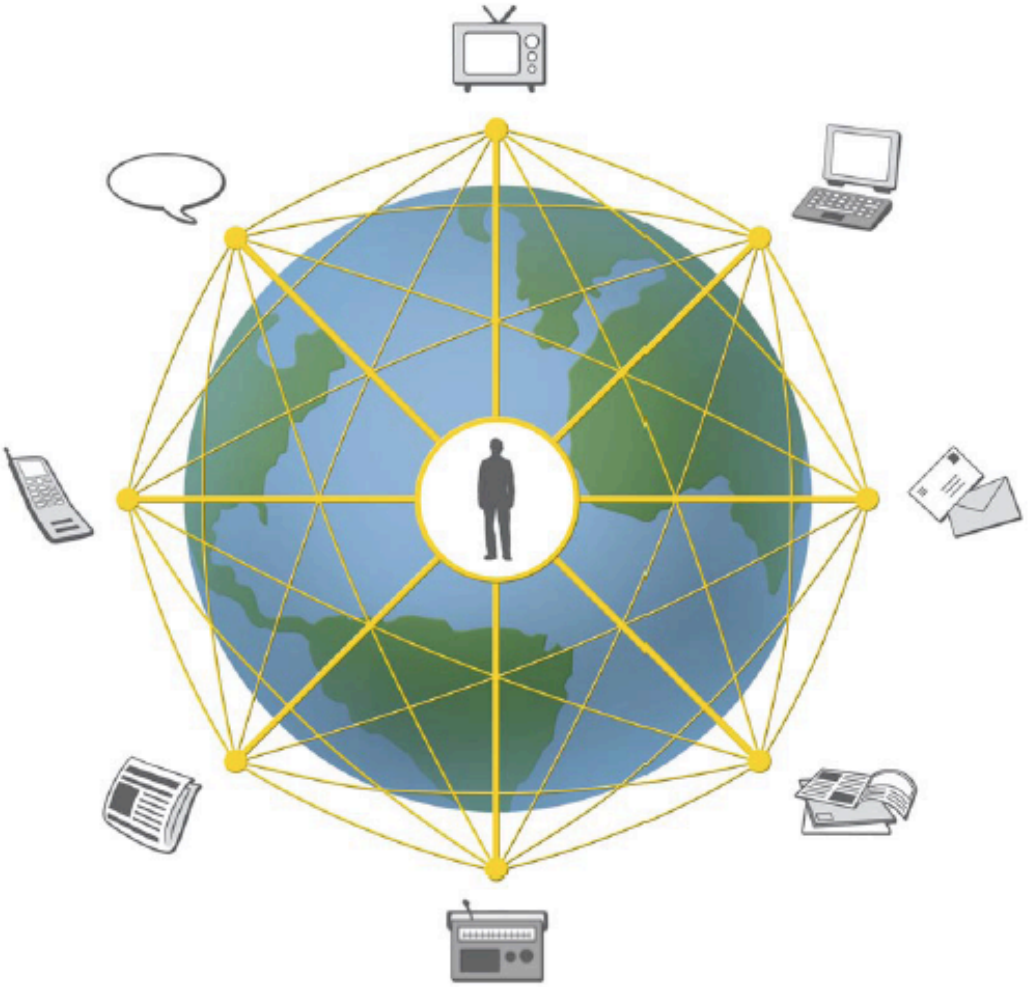
From Monologue

To Dialogue



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From Industry centered

To User centered

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industry generated content

passive user

involved user

active user

user driven content

user generated content

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COMPETITION FOR THE AUDIENCE

USER EXPERIENCE

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Part 2

MEASUREMENT

TECHNIQUES AND METHODS

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Part 2-a

WHAT DO WE WANT TO MEASURE

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Objectives - 1a

Quantify ownership and use of several 'connected consumer' platforms, such as Internet-enabled TVs, Blu-ray players, game consoles, Internet set-top boxes, and mobile media devices.

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Objectives - 1b

Identify media consumption preferences and behaviors among 'connected consumers' across the various platforms.

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Objectives - 1c

Examine the changing role of the PC from a data-centric to a media-centric device, specifically the use of portable PCs such as laptops and netbooks.

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Objectives - 2a

Measure and optimize the impact of a digital marketing campaign in real-time.

Management software should allow to constantly monitor a campaign's success and make adjustments in real-time to maximize performance.

Objectives - 2b

Customization of in-store promotions at the regional and local level, while ensuring adherence to corporate brand guidelines.

Template-based design tool and customizable approval process insure that only approved messages will be displayed.

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Objectives - 3a

Target personalized promotions to customers in realtime through integration with your POS or demographic targeting technology, enabling you to benefit from an increased customer share of wallet.

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Objectives - 3b

Accelerate campaign time-to-market with the software, which has to provide quick and seamless workflow and real-time content distribution capabilities.

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Objectives - 4a

Reduce costs of creative services, production & distribution.

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Objectives - 4b

Improve customer satisfaction by displaying clear, consistent and relevant product information and special offers, ensuring 100% compliance to corporate branding guidelines.

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Objectives - 4c

Close the loop:

- Produce
- Update
- Personalize
- Measure

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Challenges - 1a

Generate measurable sales uplift to prove ROI.

Increase average order size through up-selling.

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Challenges - 1b

Expand brand perception from a given time of day destination to an ‘any time’ destination.

Raise awareness and invite trial of new products.

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Challenges - 2a

Increase sales of specific products and other related products.

Provide an engaging customer experience.

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Challenges - 2b

Improve performance through new product sales and increase in current product use.

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Challenges - 3

Provide an outstanding customer experience to improve customer acquisition.

Control corporate communications & employee training to all branches and offices.

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Possible Solution

Horizontal and attention-getting full-wall screens can display images of products in motion and can be coordinated with point-of-sale screens to promote monthly specials.

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Expected Results - 1

Sales of all promoted items up.

Sales of featured products should have increased by at least 15 to 20%.

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Expected Results - 2

Sales up - especially on promoted items.

Franchisees and store managers are happier.

Customer wait times and transaction times have been reduced.

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Expected Results - 3

Even when customers do have to stand in line, they should report that the wait seemed shorter as a result of the enhanced customer experience.

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Digital Signage Features - 1

Digital signage can be a powerful tool in isolating information from background and ambient noise.

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Digital Signage Features - 2

Coherence of messages across different media and platforms is more important that repeating the message over and over.

TV vs.

Digital Signage, Mobile Devices, Internet.

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Digital Signage Features - 3a

The images and sounds used for digital signage are representations of products, services, brands, moods.

They are not the objects.

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Digital Signage Features - 3b

The wrong representation will disappear and be drowned in ambient noise and can even have a negative effect.

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Part 2-b

MEASUREMENT

TOOLS and TECHNIQUES

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Very few and unreliable data are available to measure the effectiveness of Dynamic Digital Signage.

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It is imperative to establish valid, accurate, and shared measurement tools and methods.

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In Dynamic Digital Signage
it is rarely possible to use measurements techniques and methods that are applicable to large numbers.

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In Dynamic Digital Signage
it is rarely possible to use measurements techniques and methods that are applicable to large numbers.

We are dealing mostly with small numbers and in limited floor spaces.

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Monitors with incorporated cameras with software capable of identifying basic features of those in front of a display can be a good starter for the collection of raw data.

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But this method does not allow to make inferences or accurate predictions about the specific audience in proximity at a given time.

Also, specific time is the variable that influences most which audience is where.

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For example, counting how many people go by in a large train station per diem, where a network of monitors is operating, is meaningless.

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This cannot account for the level of attraction, attention span, and retainment of information.

It cannot take into consideration the segmentation of the audience.

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Gaussian (normal) distribution

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Tools such as Gaussian (normal) curves are not to be used, for we do not know the specific elements of the distribution, due to the small numbers involved.

In Gaussian curves, the mean is not an absolute value, as it depends upon the specific characteristics of the population under study.

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Even computing the standard deviation will not improve our knowledge of the audience.

Gaussian distributions cannot reveal segmentation ofthe audience in the context of most Dynamic Digital Signage situations.

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We need measurement tools that will provide, among other data:

- actual presence
- evolution in time and space: movements, paths
- groupings
- level of attraction (attention gathering)
- duration of attention (sustaining attention)
- level of attention (start of memorization process)
- time between reception of information and action
- action or withdrawal

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Poisson Distribution

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We can use other tools of probability theory and statistics, such as the **Poisson distribution**:

It is a discrete probability distribution that expresses the probability of a number of events occurring in a fixed period of time, if these events occur with a known average rate and independently of the time since the last event.

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The **Poisson distribution** can also be used for the number of events in other specified intervals, such as distance, area or volume.

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The Poisson distribution fulfills part of our requirements:

- small numbers
- few initial data

- possibility of extrapolating behaviors
- possibility of simulating situations that could lead to the increase of the initial audience in the proximity of a display
- or of simulating the disappearance of a proximity audience

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To understand the behavior of the audience over a period of time, it is useful to be able to map the movements within a given space.

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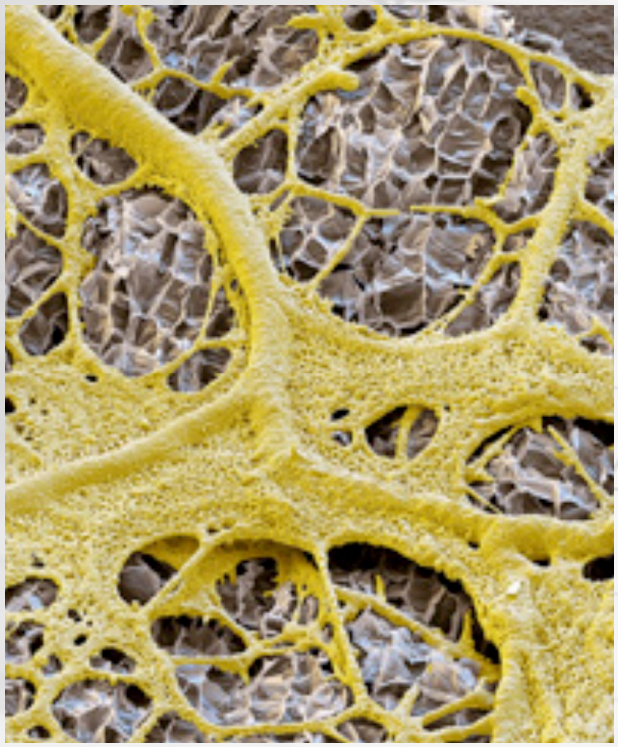
Two techniques are available:

- Theory of Graphs
- Eigenbehavior Mapping

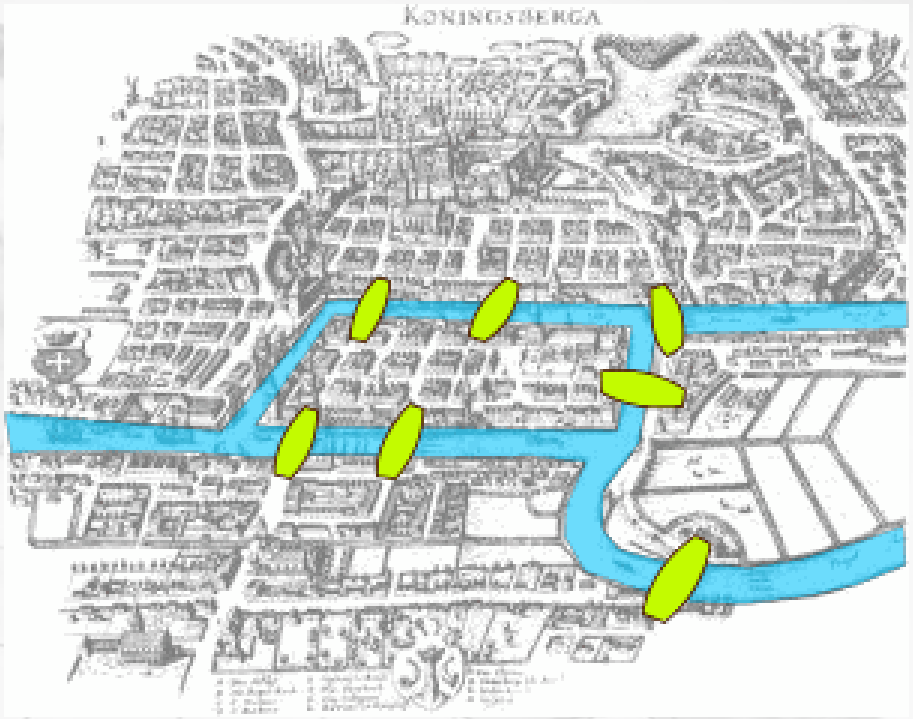
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Paths - Theory of Graphs and Eigenbehavior



Mapping with slime moulds



Euler - Map of the 7 bridges in Konigsberg

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The **Theory of Graphs** allows to visualize the connections between points corresponding to the movements of a given small audience within a given space:

- in closed spaces, or in open spaces with defined walking paths, individuals or small groups move from point to point
- a graph can describe the movements
- and it can account for the time spent at any given point

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The data arranged as graphs will provide a map of the mouvements, the directions and the time spent at each point of the graph.

These data will provide a first understanding of three variables:

- are the displays properly located in function of the objectives ?
- are people attracted by the displays ?
- how long do people watch the content being displayed ?

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Eigenbehavior Mapping can be used to predict movements of even a very small group of people, under the condition that the context is known: e.g. a campus, a supermarket, a plaza, etc.

Among other elements of information, these data will provide an understanding of how people gather to create small groups, which then move as a single individual.

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The Poisson distribution, together with the Theory of Graphs and Eigenbehavior Mapping provide fundamental, coherent data about "customer" behavior in space and time.

In addition, they provide data that can be used to simulate improvements in the locations of displays, and of displays relatively to Points of Purchase.

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Indirectly, these three methods and techniques provide data about:

- **attention gathering**
- **attention span**
- **action (impulsive or otherwise)**

- **which verify if CONTENT is fulfilling the objectives of the communication system**

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Finite Markov Chains

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If we want to simulate behaviors over a period of time, we can use probabilistic models which can account for the changes that could occur within the distribution of a given population.

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The model can be constructed starting with a known distribution (e.g. spending capabilities) to estimate the evolution towards another distribution after a hypothetical number of transitions of states (e.g. of separate purchases over a period of time).

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In this context, the most powerful predictive models are provided by the **Finite Markov Chains,** a branch of probability theory**.**

This allows to study a variety of possible outcomes concerning changes occurring in the behavior of a population over a period of time.

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Conversely, it is possible to estimate how many transitions of the state of the system will be necessary to arrive at a hoped-for distribution.

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Finite Markov Chains can use the data derived from the Graphs and Eigenbehavior Mapping and will provide:

- the possibility of mapping and predicting change
- the possibility of constructing alternative outcomes in space and time
- the possibility of mapping and predicting the variations in intensity of the communication fluxes

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3D Simulation

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A visual set of predictive tools is offered by simulations designed with 3D imaging software:

- simulation of location of displays
- simulation of paths followed by the audience
- simulation of visibility of the displays under varying lighting conditions
- simulation of optimization of colorimetry control

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A visual set of predictive tools is offered by simulations designed with 3D imaging software:

- in addition, 3D visualization can be combined with Eigenbehavior Mapping to optimize relative locations of displays and Points of Purchase

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When simulations designed with 3D imaging software are used, the main advantages are:

- coherent overall planning of the display setup
- definition of the best location of each display and of the connections between displays (suggested walks), relatively to the spatial environment
- verification of the timing of the playout
- better overall control
- **it is a money saver !**

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Simulation of the display setup at Heathrow Terminal 5

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SKILLS
PROFESSIONS
MULTIPLE TASKS

LIFELONG TRAINING
CONTINUOUS INNOVATION

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Part 2

MEASUREMENT

TECHNIQUES AND METHODS

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END

Part 2

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Theoretical framework:

Claude Shannon - The Mathematical Theory of Communication

Fritz Heider - Theory of Interpersonal Relations

Erving Goffman - The Presentation of Self in Everyday Life

Joseph Berger - Sociological Theories in Progress, New Formulations

Cesare Massarenti - A general Model of a Communication Continuum

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