

# Data Analytics in Business

## Marketing & Advertising

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L1.1: Marketing & Advertising



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PhD Math MIT, BS Math Brussels Univ.  
Asst. Prof. Princeton, Assoc Prof UCSD

22 years in business : AdTech, Marketing  
and Advertising

14 years in start-ups, 6 years in big  
companies, 2 years in non-profit org

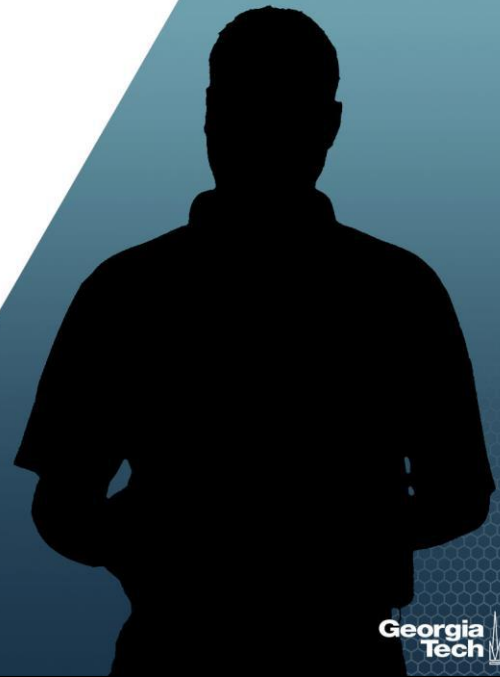
MS Quant Comp Finance, GaTech



# Learning Objectives

**At the end of this lesson, you should be able to:**

- Name the five main types of traditional advertising
- Name the five main types of digital advertising
- Explain basic features and differences



# Traditional Advertising

## History of Printing Press

- 868 CE: First printed books in China “The Diamond Sutra” (Tang Dynasty, Buddhist text)
- 1452 CE: Johannes Guttenberg in Germany “Bible” (180 copies, with Johannes Fust)
- Then Italy, France, Spain, England 1465-1476
- Worldwide spread of printing press technology
- 1501: Pope Alexander VI declares printing requires permission of the church
- 1520: Spread of Martin Luther reform ideas

# Traditional Advertising

## Traditional Methods of Advertising

1. Outdoors Display & Promotions
2. Print: Newspapers & Magazines
3. Mailings: Door to door (Persia to Ben Franklin 1775)
4. Radio (G. Marconi in 1895-1902)
5. Television (Boris Rosing 1911, Philo Farnsworth 1927, Vladimir Zworykin 1923?, NBC 1930's)



# Traditional Advertising - Methods of Sale

**Traditional advertising is sold on a cost per thousand basis**

**CPM = Cost Per Mille or Thousand**

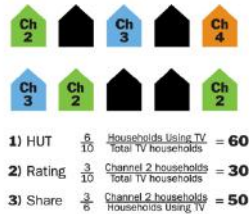
(Roman numerals M = Milia = Thousand)

Count the number of thousands of people watching a program or an ad

Nielsen Age breakdowns: 13-17, 18-24, 25-34, 35-54, 55+ and 18-49



# TV Advertising - Methods of Rating



or Rating = Share x HUT



## HUT

$$\frac{\text{Households Using TV}}{\text{Total TV Households}} = \frac{6}{10} = 60$$

## RATING

$$\frac{\text{Channel 2 Households}}{\text{Total TV Households}} = \frac{3}{10} = 30$$

## SHARE

$$\frac{\text{Channel 2 Households}}{\text{Households Using TV}} = \frac{3}{6} = 50$$

Source: Introduction To Mass Communications, by Stanley J. Stein, McGraw Hill, 1997, pp. 389

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# TV Advertising - Methods of Rating



or GRPs = Reach x Frequency



## GRPs

Monday = 20 Rtg  
Tuesday = 30 Rtg  
Wednesday = 40 Rtg  
Thursday = 30 Rtg  
Friday = 30 Rtg  
Total 150 GRPs

/

## REACH

$$\frac{\text{Channel 2 Households}}{\text{Total TV Households}} = \frac{7}{10} = 70$$

## = FREQUENCY

$$\frac{\text{GRPs}}{\text{Reach}} = \frac{150}{70} = 2.1$$

Source: Introduction To Mass Communications, by Stanley J. Stein, McGraw Hill, 1997, pp. 389

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# Effects of Advertising and Public Relations

## Marketing and Advertising work because of psychology

1. Researchers have studied the effects of marketing and advertising
2. Research of Committee on Public Information/Creel Committee (1917-1920)
3. Followed by works of Walter Lippmann with book *Public Opinion* (1922)
4. Edward Bernays and his book *Propaganda* (1928)
5. Ad campaigns for cigarettes for women ("Torches of Freedom") (1929)
6. ...
7. *Buyology* (2008) by Martin Lindstrom. Field of Neuromarketing and *Small Data*



# Digital Advertising

## Digital Methods of Marketing

1. Display Advertising
2. Search Engine Marketing (SEM)
3. Social Media Marketing
4. Mobile Advertising
5. Email Marketing

We'll look at each of them in next lesson.



# Summary

1. Advertising has been around for thousands of years
2. Traditional advertising methods
3. Digital advertising methods
4. In 1900's, we started understanding the effects of influence on opinions
5. Still researching to quantify these effects (propaganda, public relations)

