

Evolution of Curricula of Graphic Arts and Media Technology Education- A Comparative Analysis

Anastasios E. Politis ^{1,2}, Chrysoula Gatsou¹

1. Department of Graphic Arts Technology, TEI of Athens, Greece

2. HELGRAMED – hellenic Union of Graphic Arts and MediaM Technology Engineers

Research questions:

Need for reorientation of education and training in the graphic arts – graphic communication and media technology fields

Why ?

Which way, how and towards which direction?

General trends

- Graphic - media production is oriented towards full digital workflows.
- Increasing application of cross-media and multichannel publishing concepts.
- Emergence of new professions.
- Requirements for inter-disciplinary teamwork-based nature of employment, with the combination of technical, creative management and business skills that cut across traditional professions and education structures.

General trends, cont.

- Many of the new jobs created in the sector require hybrid skills, which are not yet well provided by existing educational organisations.
- Information technology (IT) influences employment at all levels in the print and graphic communications sector/ industry, changing both the nature of the production process.
- The so-called “Creative Industries” trend, needs to be considered (a hype or a real trend?)

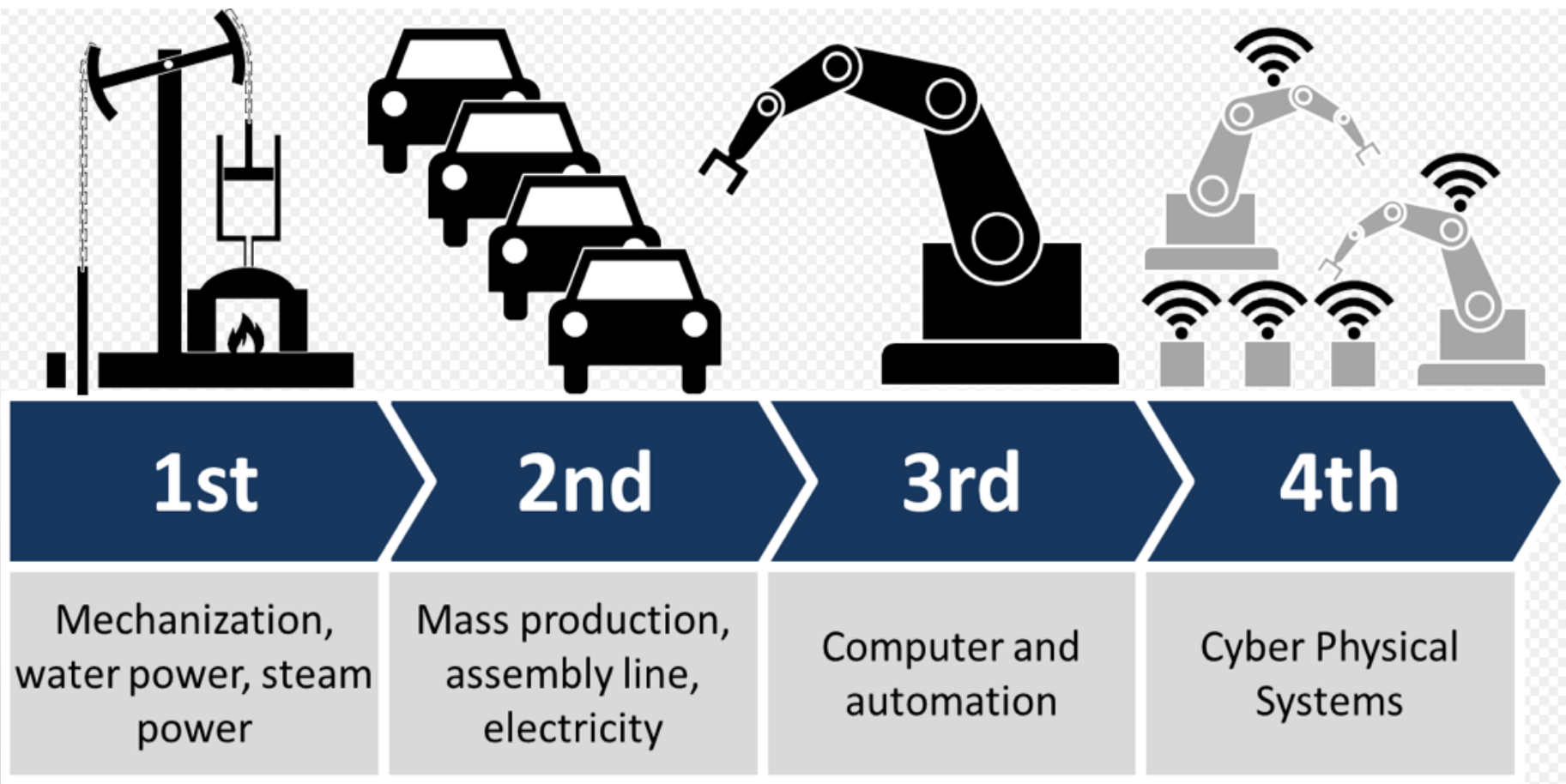
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A principal challenge:

Lack of strategies of the graphic communication and media industry, towards efficient business models for continuous prosperity (and profit).

In principle, graphic – media companies (the employment field for our students), try to solve highly complex issues and challenges with traditional analysis tools.

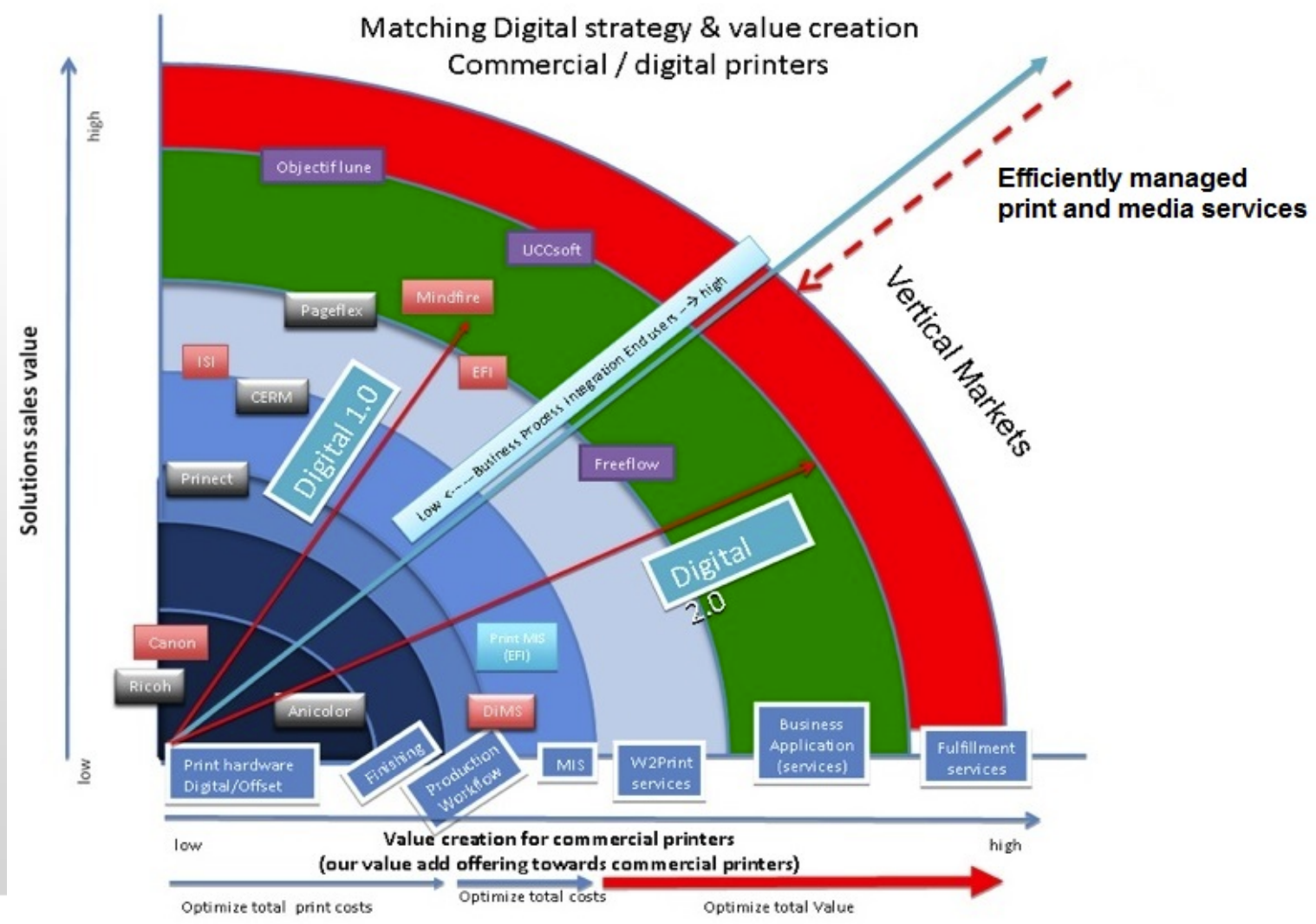
Industry 4.0



The Print 4.0 megatrend: end-to-end digital workflow

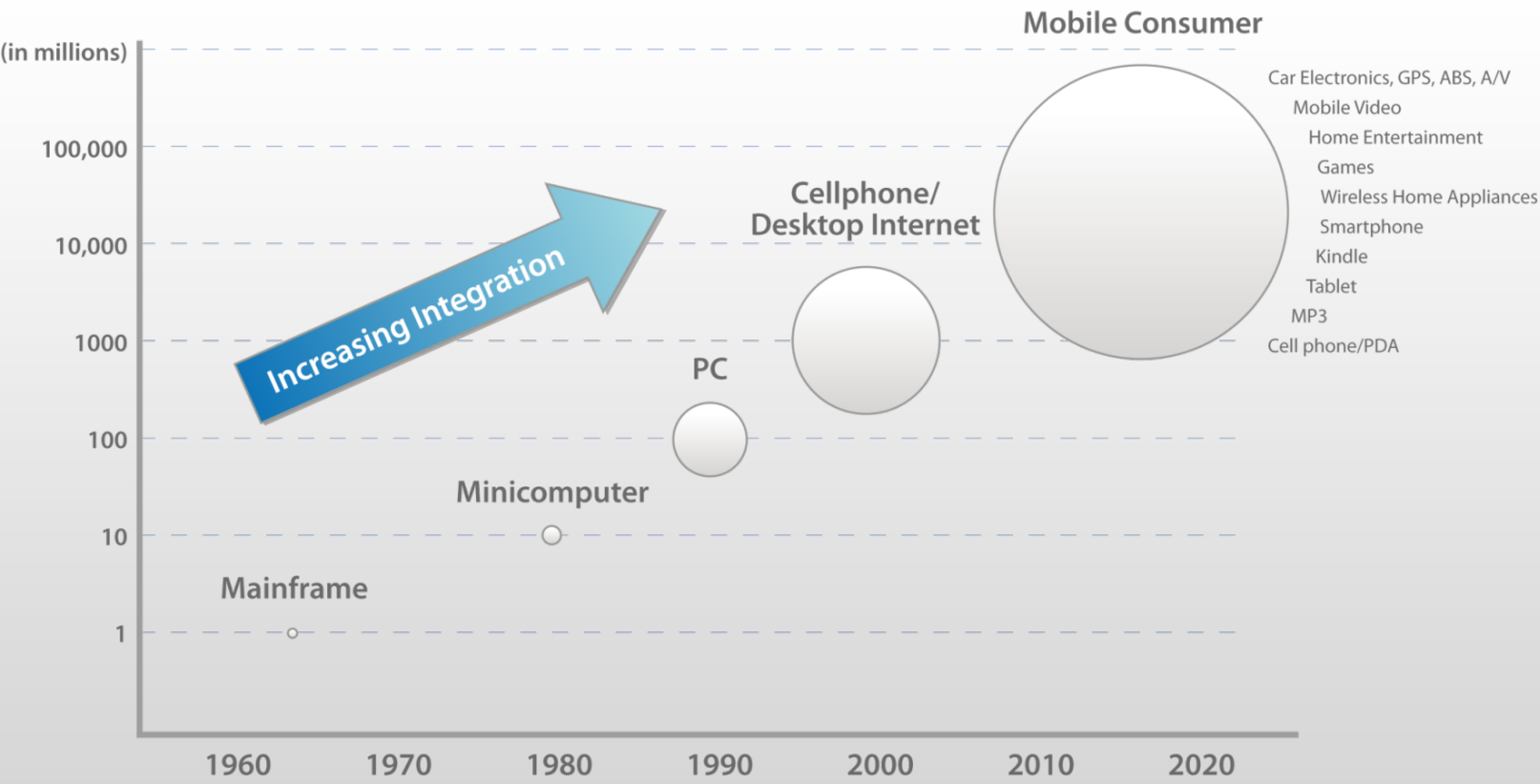
“Print 4.0 is the enabler for individualization and personalization in digital printing, high-quality packaging and the fast-growing range of solutions in industrial and functional printing (Claus Bolza-Schünemann, Chairman of the drupa Committee)

The Print 4.0 megatrend



Changes, Changes...

Continuous developments in the Industry
An exponential growth in the use of devices in graphic communication

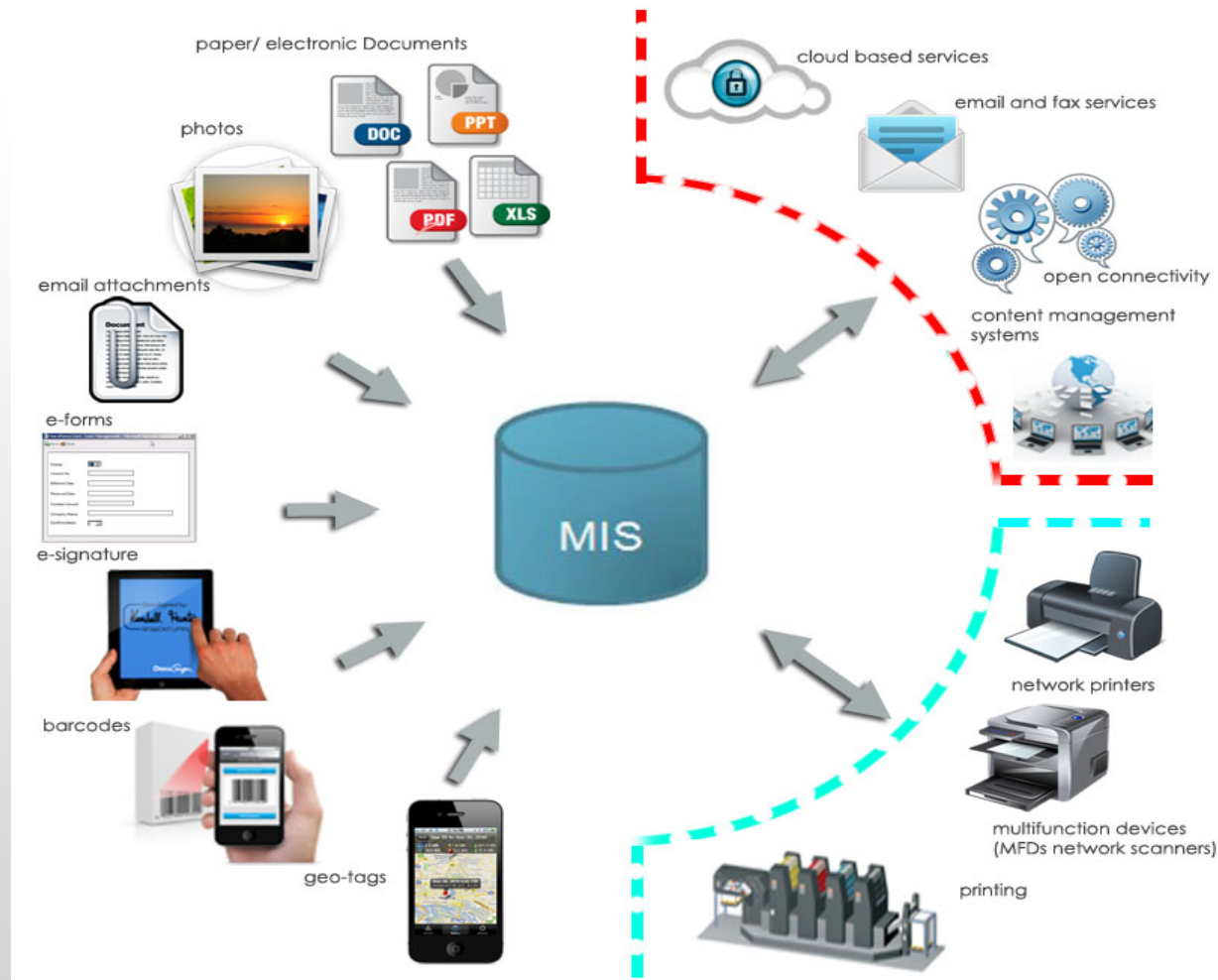


Source: ITU and Morgan Stanley Research

From linear workflows ...



... to multichannel workflows and media concepts



Trends in education and training for the graphic communication and media fields

- Graphic communication and media technology education has been evolving in the last decades with restructuring of curricula, and the adoption of new/updated courses and modules throughout the entire spectrum of the education levels.
- These transformation and restructuring policies are more obvious at higher education level, where international cooperation allow the observation of such changes in different countries.

Curricula development - a comparative analysis



There are some 190 Higher education Institutes in graphic communication and media technology fields worldwide



8 HEIs have been selected:

1. RIT- ROCHESTER INSTITUTE OF TECHNOLOGY (USA)
2. CAL POLY- CALIFORNIA POLYTECHNIC STATE UNIVERSITY (USA)
3. RYERSON UNIVERSITY (CANADA)
4. KTH ROYAL INSTITUTE OF TECHNOLOGY (SWEDEN)
5. STUTTGART MEDIA UNIVERSITY (GERMANY)
6. UNIVERSITY OF ZAGREB (CROATIA)
7. MOSCOW STATE UNIVERSITY OF PRINTING ARTS
8. XUT UNIVERSITY OF TECHNOLOGY (P.R. CHINA)

RIT ROCHESTER INSTITUTE OF TECHNOLOGY

College of Imaging Arts and Sciences



- School of Media Sciences
- School of Art
- School of Design
- School of Film and Animation
- School of Photographic Arts and Sciences
- School for American Crafts

RIT ROCHESTER INSTITUTE OF TECHNOLOGY

College of Imaging Arts and Sciences

School of Media Sciences → Media Arts and Technology

Digital imaging and pre-media	Print production, print quality	Content management	Contemporary publishing	Advertising and media strategy
<ul style="list-style-type: none"> •Print Finishing Management •Digital Foundations •Typography and page design •Imaging for New Media •Color Management Systems •Image Processing Workflow •Premedia process •Digital Asset Management •Media Law 	<ul style="list-style-type: none"> •Digital Print Process •Lithographic Process •Flexographic Process •Gravure Process •Print Finishing Management •Ink Chemistry and Formulation •Substrates for Printing •Operations •Management for Graphic Media 	<ul style="list-style-type: none"> •Digital Foundations •Digital Asset Management •Database Publishing •Media Law 	<ul style="list-style-type: none"> •Digital Foundations •Typography and Page Design •Digital Asset Management •Digital News Systems Management •Media Distribution and Transmission •Media Law •News Production Management 	<ul style="list-style-type: none"> •Media Industry Analysis •New Media Perspectives •Multimedia Strategies •Media Distribution and Transmission •Media Law •Media Business Basic

RIT ROCHESTER INSTITUTE OF TECHNOLOGY

College of Imaging Arts and Sciences

Print Media MS

1st Year

- Materials and Processes in Printing
- Tone and Color Analysis
- Operations Management in Graphic Arts
- Cross Media Workflow
- Research Methods and Trends in Graphic Media
- Graduate Elective

2nd Year

- Thesis Project
- Statistical Analysis
- Selection modules

CAL POLY - California Polytechnic State University

Graphic Communication Department

Bachelor of Science Graphic Communication



CAL POLY - California Polytechnic State University

Graphic Communication Department

Bachelor of Science Graphic Communication

Study programmes / directions

- Design Reproduction Technology
- Web and Digital Media
- Graphics for Packaging
- Graphic Communication Management

CAL POLY - California Polytechnic State University

Graphic Communication Department

Design Reproduction Technology	Web and Digital Media	Graphics for Packaging	Graphic Communication Management
<ul style="list-style-type: none"> •Foundation: Color Theory •Foundation: 2-Dimensional Design •Consumer Packaging •Web Design and Production •Book Design Technology •Magazine Design Technology •Advanced Digital Typography •Color Management and Quality Analysis •Management Topics in Graphic Communication •Emerging Technologies in Graphic Communication •Design Reproduction Topics in Graphic Communication 	<ul style="list-style-type: none"> •Fundamentals of Computer Science I •Color Management and Quality Analysis •Web Design and Production •Digital Media •Introduction to Interactive Entertainment •Special Problems for Advanced Undergraduates •Management Topics in Graphic Communication •Emerging Technologies in Graphic Communication •Design Reproduction 	<ul style="list-style-type: none"> •Color Management and Quality Analysis •Consumer Packaging •Specialty Printing Technologies •Production Management for Print and Digital Media •Elements of Food Processing •Packaging Fundamentals 	<ul style="list-style-type: none"> •Production Management for Print and Digital Media •Legal Responsibilities of Business •Financial Accounting for Non-business Majors •Organizations, People, and Technology •Organizational Communication •Consumer Packaging •Management Topics in Graphic Communication •Emerging Technologies in Graphic Communication •Introduction to International Business •Introduction to Entrepreneurship

CAL POLY - California Polytechnic State University

Graphic Communication Department

Master Courses

- MBA, Graphic Communication Document Systems Management Specialization
- MS Printed Electronics and Functional Imaging

RYERSON UNIVERSITY

Communication and Media

- Graphic Communications Management
- Magazine and Web Publishing
- Publishing
- Image Arts
- Business Communication
- Community Engagement, Leadership, and Development
- Film Studies
- News Studies
- Photography Studies
- Public Relations
- Strategic Marketing
- Media Writing Fundamentals

RYERSON UNIVERSITY

Communication and Media

Bachelor of Technology in Graphic Communications Management

1st year

1st Semester

- Layout and Typography
- Introduction to Electronic Premedia I
- Printing Processes I
- Principles of Marketing
- Επιλογής

2nd Semester

- Introduction to Contemporary Business
- Communication
- Introduction to Global Management
- Layout and Typography II
- Introduction to Electronic Premedia II
- Printing Processes II
- Επιλογής

2nd year

3rd Semester

- Introductory Financial Accounting
- Binding and Finishing I
- Electronic Document Design I
- Intermediate Electronic Premedia I
- Printing Processes III
- Marketing Metrics and Analysis

4th Semester

- Introductory Management Accounting
- Binding and Finishing II
- Electronic Document Design II
- Intermediate Electronic Premedia II
- Quality Control in Printing
- Επιλογής

RYERSON UNIVERSITY

Communication and Media

Bachelor of Technology in Graphic Communications Management

3rd year

5th Semester

- Manufacturing Management for the Graphic Arts
- Selling in the Graphic Arts
- Management Studies I
- Adv Electronic Premedia I
- Printing Processes IV

- Επιλογής
- Ειδικότητας

6th Semester

- Estimating in the Graphic Arts
- Management Studies II
- Adv Electronic Premedia II
- Printing Processes V

- Επιλογής
- Ειδικότητας

4th year

7th Semester

- Management of Workflow I
- Management Studies III
- Managing Advanced Technology I

- Επιλογής
- Ειδικότητας

8th Semester

- Management of Workflow II
- Management Studies IV
- Managing Advanced Technology II

- Ειδικότητας

KTH -ROYAL INSTITUTE OF TECHNOLOGY SCHOOL OF COMPUTER SCIENCE AND COMMUNICATION



Department of Media Technology and
Interaction design

Human-Computer Interaction (HCI) **plus**
Media Technology and Graphic Arts

KTH -SCHOOL OF COMPUTER SCIENCE AND COMMUNICATION

Department of Media Technology and Interaction Design

Human-Computer Interaction (HCI) + Media Technology and Graphic Arts

1 st year	2 nd year	3 rd year
<ul style="list-style-type: none">•introduction to media technology•programming for interactive media•graphics technology•communication and information•mathematics•wave physics•electrical engineering•programme integration course• selection modules	<ul style="list-style-type: none">•image and video engineering•media configuration/design•presence architecture•applied computer science•data base technology•industrial economics•optional mathematics course•sound engineering• selection modules	<ul style="list-style-type: none">•human-computer interaction•elective specialization course•degree project (Bachelor of Science)• selection modules

<http://www.kth.se/en/csc/forskning/forskningsomraden/medieteknik-och-interaktionsdesign-1.295051>

KTH -SCHOOL OF COMPUTER SCIENCE AND COMMUNICATION

Department of Media Technology and Interaction design

Human-Computer Interaction (HCI) + Media Technology and Graphic Arts


Master Courses

- Media Technology (MT)
- Human-Computer Interaction (MS)

STUTT GART MEDIA UNIVERSITY

Stuttgart Media University

Bachelor Study Courses

- **Printing and Media Technology (Bachelor of Engineering)**  **Graphic Arts Technology**
Digital Publishing
- **Print Media Management (Bachelor of Science)**
- **Packaging Technology (Bachelor of Engineering)**
- **Cross Media Journalism (Bachelor of Arts)**
- **German-Chinese Degree Programme in Packaging Technology (Bachelor of Engineering)**
- **German-Chinese Degree Programme**
- **Information Design (Bachelor of Arts)**
- **Information Systems and Digital Media (Bachelor of Science)**
- **Library and Information Management (Bachelor of Arts)**
- **Media Management (Bachelor of Arts)**
- **Media Publishing (Bachelor of Science)**
- **Mobile Media (Bachelor of Science)**
- **Advertising and Marketing Communication (Bachelor of Arts)**
- **Audiovisual Media with Specializations in Technology and Design (Bachelor of Engineering)**
- **Computer Science and Media (Bachelor of Science)**
- **Online Media Management (Bachelor of Science)**

STUTT GART MEDIA UNIVERSITY

University of Printing and Media + Stuttgart Media University

Postgraduate Courses

- Print and Publishing
- Electronic Media
- German Chinese joint study program: Printing Technology and Management
- Computer Science and Media
- Packaging Design & Marketing
- Master Library and Information Management

UNIVERSITY OF ZAGREB

Faculty of Graphic Arts



Undergraduate studies

- Printing Technology
- program: Technological direction
- program: Design of printed products

Basic research fields

- visual communication
- Ecology
- digital media
- printing processes
 - Journal : “Acta Graphica”
 - International Conference “Blaz Baromic”

UNIVERSITY OF ZAGREB

Faculty of Graphic Arts

Postgraduate studies

Program: Technological

- Printing Technology
- Multimedia
- Packaging
- Publishing
- Graphic Management

Program: Design of printed products

Doctoral program

- Graphic Engineering and Graphic Design

MOSCOW STATE UNIVERSITY OF PRINTING ARTS

Faculty for print media technologies

Falulties

- The faculty for print media technologies
- The faculty for graphical arts
- The faculty for publishing and journalism
- The faculty for digital systems and technologies
- The faculty for advertising and public relations
- The faculty for economics and management

<http://en.russia.edu.ru/vuz/2011/#sthash.XVcoRs5G.dpuf>

MOSCOW STATE UNIVERSITY OF PRINTING ARTS

Faculty for print media technologies

Undergraduate studies:

- Technology of printing and packaging production
- Quality management
- Technological machinery and equipment
- Material science and technology of materials

The courses focus on the following key areas:

- Prepress publishing process
- Printing Technology process
- Finance and management of print production

MOSCOW STATE UNIVERSITY OF PRINTING ARTS

Faculty for print media technologies

Postgraduate studies

- Technology of printing and packaging production
- Quality management
- Technological machinery and equipment
- Material science and technology of materials

XUT UNIVERSITY OF TECHNOLOGY

Bachelor Programmes

- Digital Media Technology
- Printing Engineering
- Packaging Engineering

Postgraduate Programmes

- Printing and Packaging Technology and Equipment

XUT UNIVERSITY OF TECHNOLOGY

Main Research Areas

- Color Image Processing
- Color Information Processing and Printing Reproduction Technology
- Application of Test and Control in Printing
- Functional Packaging Materials
- Image Processing, Pattern Recognition and Intelligent Information Processing
- Packaging Materials and Its Waste Treatment Technology
- Printing Image Processing and Printing
- Printing Information Copy Technology and Quality Test
- Printing System Engineering
- Quality Control of Package Printing and Anti-Counterfeit Technique
- Theory and Application Research and System Emulation of Printing Machinery
- Transportation Package

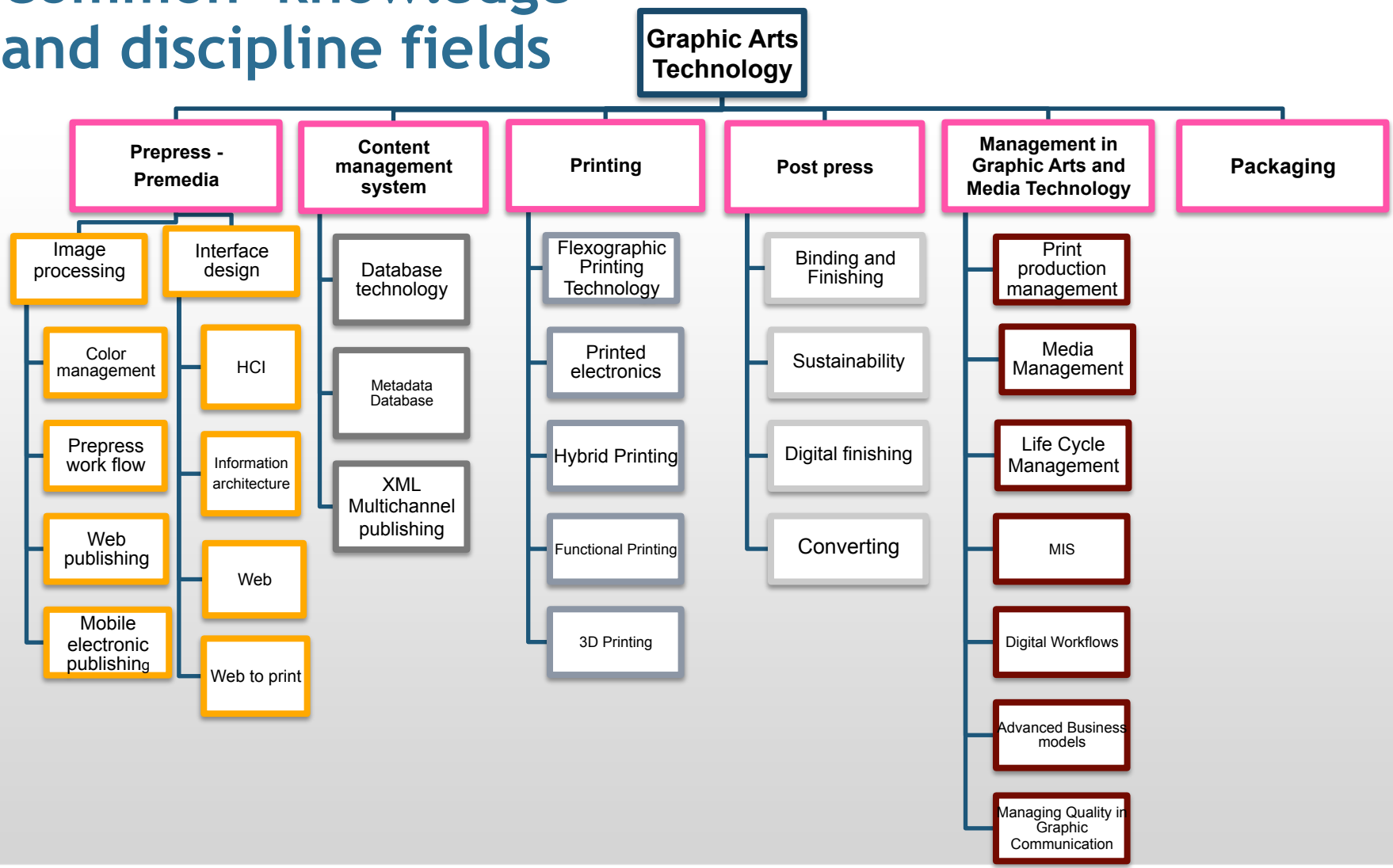
Discussion and conclusions

- The survey reveals that there are many similarities between the programmes
- originated from the perspective of disciplines, knowledge, skills and competences acquired by students
- Hence there are significant differences in the orientation and structure in the programmes

Reasons for the differences

- Different social and cultural context
- Different policies of the university
- Different industrial infrastructure in the country
- Different priorities at the Research Institutes of the Universities/Institutes concerning research fields and orientation

Common knowledge and discipline fields



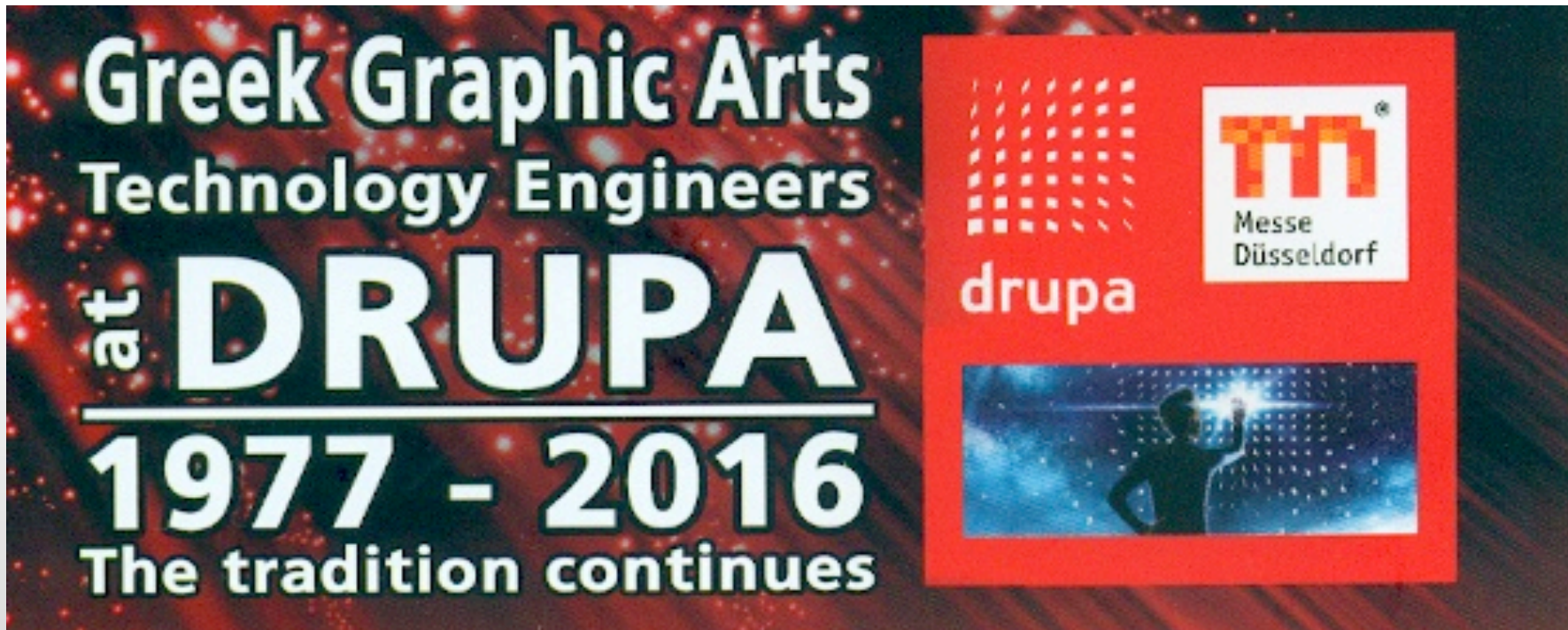
Some proposals - ideas for action for the Higher education institutes:

- Initiatives for restructuring and anticipation of change including innovation in work and learning in the sector
- More involvement at all levels of graphic media education development
- Considerations on flexible pathways for continuous - blended learning
- Act towards creating mobility structures
- Act towards removing the barriers for education and training between levels, countries, fields of expertise, formal and informal learning
- Match learning with restructuring, innovation and business orientation in enterprises

Further research

- Research on denomination of the graphic/media education.
- Spot the influence of the relationship / competition / convergence among print - digital and mobile media in graphic communication and media technology curricula.
- Examine the Print 4.0 megatrend
- Examine the role of HEIs in the so-called “Creative Industries”
- Examine joint Curricula among Institutes from different countries
- **The (new) role of the International Circle! Joint action towards old and new challenges**

Go DRUPA!





Thank you!

Dr. Anastasios E. Politis
politismedia@gmail.com

Technological Educational Institute of Athens
Hellenic Union of Graphic Arts and Media Technology Engineers



HELGRAMEID

HELLENIC UNION OF GRAPHIC ARTS & MEDIA TECHNOLOGY ENGINEERS