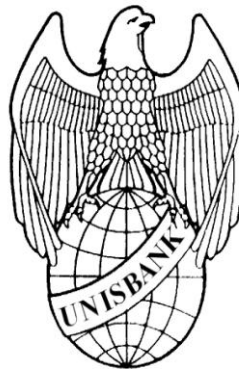


# LAPORAN PENELITIAN



## INDONESIAN PRINTING INDUSTRY TRENDS, CURRENT TECHNOLOGY, AND FUTURE DEVELOPMENT

**O L E H :**

**S ADI SUSANTO, SE, MM, ST/NIY. YK.2.11.11.091 (KETUA)**  
**Dr. dra. LIE LIANA, M.MSI, MT/NIY Y.2.02.10.042 (ANGGOTA)**  
**ANTONO ADHI, S.KOM., MT/NIY. YU.2.08.10.077 (ANGGOTA)**

**PROGRAM STUDI TEKNIK INDUSTRI**  
**FAKULTAS TEKNIK**  
**UNIVERSITAS STIKUBANK (UNISBANK) SEMARANG**  
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## HALAMAN PENGESAHAN LAPORAN HASIL PENELITIAN

- |                                 |   |
|---------------------------------|---|
| 1. Judul Penelitian             | : Indonesian Printing Industry Trends, Current Technology, and Future Development |
| 2. Bidang Penelitian            | : Teknik Industri   |
| 3. Ketua Peneliti               |   |
| a. Nama Lengkap                 | : S. Adi Susanto, SE, MM  |
| b. Jenis Kelamin                | : Laki-laki   |
| c. NIY                          | : YK.2.11.11.091  |
| d. Disiplin Ilmu                | : Teknik Industri   |
| e. Pangkat/Golongan             | : Penata Tk.1/III-B   |
| f. Jabatan Fungsional           | : Tenaga Ahli   |
| g. Fakultas/Program Studi       | : Teknik/Teknik Industri  |
| h. Alamat Kampus                | : Jl. Tri Lomba Juang No. 1, Semarang   |
| i. Telepon/Fax/Email            | : 024-8311668/8443240/ft@unisbank.ac.id   |
| j. Alamat Rumah                 | : Perum. Kampung Semawis I-8 Semarang   |
| k. Telepon/Fax/Email            | : 024-7471909/adisusanto@unisbank.ac.id   |
| 4. Jumlah Anggota Peneliti      | : 2 (dua) orang   |
| a. Nama Anggota I               | : Dr. dra. Lie Liana, M.MSI   |
| b. Nama Anggota II              | : Antono Adhi, S.Kom, MT, MM  |
| 5. Lokasi Penelitian            | : Pabrik-pabrik kertas  |
| 6. Jangka Waktu Penelitian      | : 19 Juli 2012 s.d. 21 September 2012   |
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| b. Sumber Lain                  | : Rp 5.000.000,00   |

Semarang, 20 November 2012

**Mengetahui**  
Dekan Fakultas Teknik

Ketua Penelitian,

Antono Adhi, S.Kom., MT  
NIY YU.2.08.10.077

S. Adi Susanto, SE, MM  
NIY YU.2.08.10.077

**Menyetujui**  
Ketua LPPM Unisbank,

Dr. Dra. Lie Liana, M.MSI  
NIY. Y.2.92.07.085

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Tim Peneliti

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## I. INTRODUCTION

Printing in Indonesia was introduced by Dutch Colonial in 16<sup>th</sup> century. The oldest newspaper in Indonesia begin on 1615, named “*Memories der Nouvelles*” by handwriting, then on 1688 Jan Pieterzoon Coen, Dutch Colonial General Governor for Indonesia, order the first news paper printing machine from Netherlands. Since this year, printing industry at Indonesia growth with Dutch Colonialism influenced until Indonesian Independence Day on 1945. Since 1945, the first National Newspaper born, named “*Kedaulatan Rakyat*”, and still exist until now. Graphic industries are:

1. Industry that designs, develops, manufactures, and introduces products that contain or relate to sentences and images to bring information, ideas and feelings.
2. The product was used for the purpose of learning, entertainment, motivational, commercial, etc.

Now Indonesian Printing Industry was developed since last 10 years, this industry growth at 2012 increase 5,3%, higher than 2011 growth at 4,7% (Bisnis Indonesia, 2012). For the future, printing industry at Indonesia have good prosperity because the growth of printing industry have high dependency with Indonesian Economic Growth, around 6,3% - 6,5% (BPS, 2011). Indonesian printing industry growth could be watched and analyzed from printing machine import value that achieve 40% growth (Bisnis Indonesia, 2012). In 2010 until 2011 noted US\$280 Million, then in 2011 – 2012 also achieve 40% for printing machine request from foreign (Bisnis Indonesia, 2012). The growth of printing industry is the impact of Indonesian Economic Growth. Also the growth of Printing Industry at Indonesia equal with paper consumption at this industry. According APKI data base, Indonesian paper industry capacity achieve 12.5 million ton per year with domestic consumption around 7 million ton or 60%-65% per year (Bisnis Indonesia, 2012). In include newspaper paper, commercial paper and advertising board.

The data show about Printing Industry at Indonesia still has good prosperity in the future. Every human being use printing product daily. However, although the printing industry at Indonesia growth, technology also growth, but for printing education business still cannot equal with industry need. Indonesian printing education still under international standardization, we need upgrade it in order to make equal with Indonesian printing industry need. We do many surveys and research in order to find the best strategy for upgrade human resource in this industry. We believe although many companies have high tech technology in printing house, but their human resource didn't well support, it will useless.

Investment increase since in the last 10 years but not balance with the increase of competency human resources. The impact is many high techs printing machine come to Indonesia, but not efficient and optimum for the business value. Sometimes the investment become cost center for the company. It happened because they don't have supported and matched human resources for their machinery.

## **II. PRINTING IN INDONESIA**

### **2.3. Printing Industry Growth in Indonesian**

Together with foreign investment and cooperation business to business or standardization in educational side, hopefully it can make Asian Human Resources Standardization in skills and capability. Today, Indonesian printing industry as one of top 10 Producers, as in table 1, still interactive and profitable business, in many sectors such as packaging, newspaper, book publisher and etc. then for development trend now enter into flexo system. Packaging industry growth almost 7% compare with last year. In the late of 10 years, packaging industry growth in Indonesia around 5% - 6%, this data come from paper manufacture companies. After monetary crisis it increases significantly. Especially go green issue come to Indonesia, this business boost. Now, the Indonesian Ministry of Industry and Trade (2011) records printing house population in Indonesia around 50000 companies. PPGI as an association of graphic and printing in Indonesia, records his members around 26000 as shown in table 2, which 75% located in Java Island (PPGI, 2012) for the scale of company based on Indonesian Ministry of Industry and Trade, 25% big company, 35% medium company and 40% small-micro (SME's) company.

In the midst of global competition, graphics and printing machinery industry in the country was still showing positive growth, current developments in information technology also provides an opportunity to the growth of the printing industry in the country. Based on data from the Central Statistics Agency (BPS), the value of exports of commodities and graphics printed last year recorded 194.18 million U.S. dollars or 47.8 million U.S. dollar surplus. As for the paper industry recorded about 81 industrial units with an installed capacity paper 12.2 million tons of paper per year, although competition machinery industry is still dominated by China, it is optimistic Indonesia able to create a basic technology that can compete with the global industry (Metrotv News, 2012).

*Table 1. Indonesian Top 10 Producers of 2012*

<b>No</b>	<b>Top 10 Producers</b>
1	Manufacture & Production Oil / Coal
2	Manufacture of motor vehicles and parts
3	Industrial Electronic and Electrical Equipment
4	Food Industry
5	Chemical Industry
6	Industrial Computer / Office Equipment
7	Industrial Iron / Steel
8	Drug Industry
9	Industrial for Industry Equipment
10	Publishing and Printing Industry

*Source : BPS (2011)*

*Table 2. Indonesia Printing and Media Industry Population*

<b>Population</b>	<b>Number</b>
Printing Company	14655
Book Publishers	2017
Media Publisher	1802
Journal Publisher	1562
Graphic Design Company	1203
Repro Company	52
Packaging Company	3165
Paper Company	128
Ink Print Company	60
Graphic Supplier	1380

*Source : PPGI (2012)*



Digital printing at Indonesia also growth, in Indonesia there are about 10000 companies graphics or digital printing indoor or plotter, where the 6000 companies member of PPGI Association. Of that amount, 90% is in the form of digital print industry Small and Medium scale Enterprises (SMEs). Although the market is huge, the domestic industry has not seized market opportunities by making their own printing press. Because digital printing machine in the local market are all produced abroad. Only locally made laminating machine, it was small in size.

The businesses in the graphics industry optimistic based industrial printing, publishing and converting next year could grow by 5.3% or better compared with a projected 4.7% this year. Based on research by the world of marketing agencies, graphic industry in the next year could grow to 5.3%. "The optimistic prediction is no exaggeration when we correlate with the economic growth in Indonesia. According to the BPS (2011), economic growth in Indonesia grew 6.5% compared to the third quarter of 2012," Graphic Industry growth in Indonesia on the recent years beyond the 1.6% growth in the world chart. In the midst of the European debt crisis and the weakening US economy, Graphic industry in Asia would grow so fantastic; Indonesia is one country in Asia which has the printing industry's growth chart very good. It spawned many innovative product development, business ideas, creative and promising future of the printing industry perspective more interesting.

Magnitude of graphic industry growth cannot be separated from the high consumption of paper in the country. Based on the Indonesia Pulp and Paper Association (APKI, 2012), paper industry reached 12.5 million tons per year with average domestic consumption reaches 60% - 65% per year. In terms of domestic consumption, industrial growth chart this year likely to be higher than earlier projection of 4.7%. This evident from the data of import graphics industrial printing machines are up to 40% this year to US\$ 392 million compared to imports in 2011 to only US\$280 million.

*Figure 1* shows that the development of Indonesian Printing Industry technology, currently still in lithography process, many printing house still focus

on technology investment on lithography process with ISO standardization although the limitation of capable human resource still big problem at this industry. Here, many printing house still confidence to make many investments on their company. The impact is that investment for some company become cost center and they decide to bankruptcy because their investment didn't give good payback period. It happens because they didn't prepare their human resource very well. The technology development didn't balance with the development of human resource. For university or other it become good opportunity and challenge to prepare match human resources with printing industry as their needed. The demand of professional human resource in this industry is very high, especially for managerial level.

Many preparations that must be prepared due new technology invention in this industry according to industry requested. Learning from Thailand, printing industry development balanced between technology and human resources. Thailand's government support this printing industry development in Thailand, for example like develop and build specific industrial park only for printing industry. Indonesia Printing Industry still wide open for industrial and educational cooperation and foreign investment, it still potential and high opportunity.

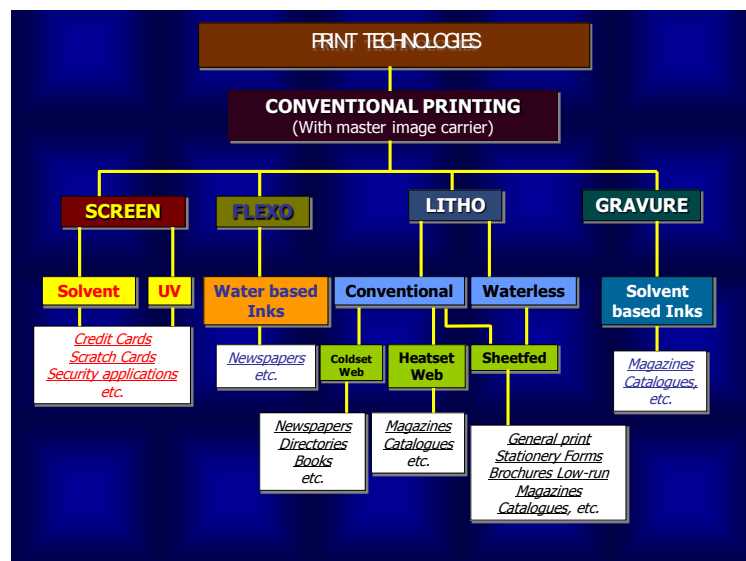


Figure 1. Indonesia printing technology and future development

Key factors supporting the development of Graphic Industry in Indonesia, are:

1. The development of printing technology as shown in figure 2, both pre press - press and post press, as shown in figure 3, and management of them as shown in figure 4.
2. An understanding of the value added in the packaging design and print quality.
3. The development of indoor and outdoor Media Advertising.
4. Demands quality prints.
5. Environmental concern.
6. Capable human resource.

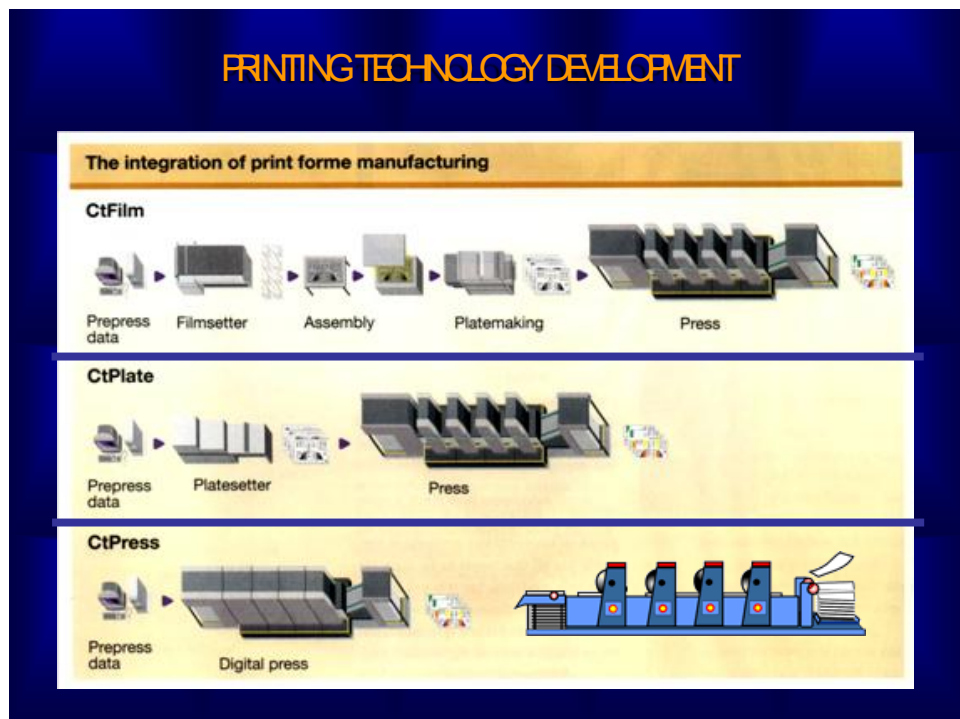


Figure 2. Printing technology development

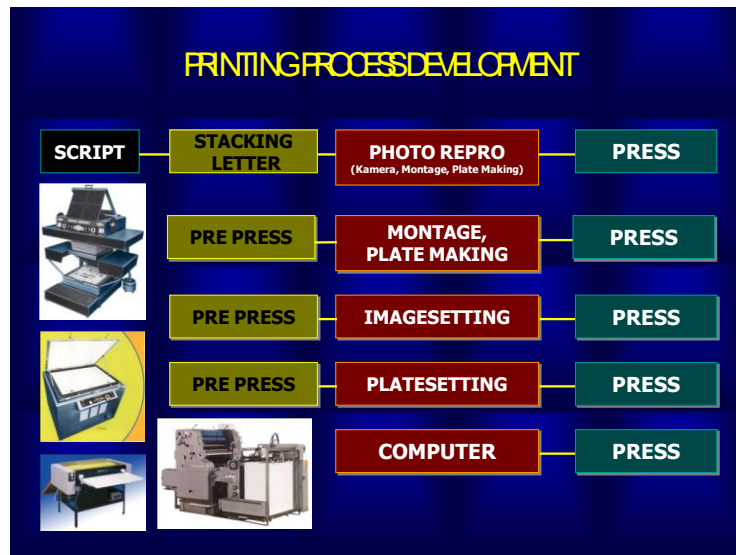


Figure 3. Printing process development

Pre-press process development are:

1. Computer to plate (computer to conventional plate).
2. Computer to screen.
3. Remote printing (remote printing).
4. Laser Engrave for gravure cylinder.
5. Color Management: The development of software RIP (Raster Image Processor).
6. ICC (International Color Consortium) profile, which connects the digital and conventional techniques.
7. Instrument of Color Calibration

## PRINTING PLANT MANAGEMENT

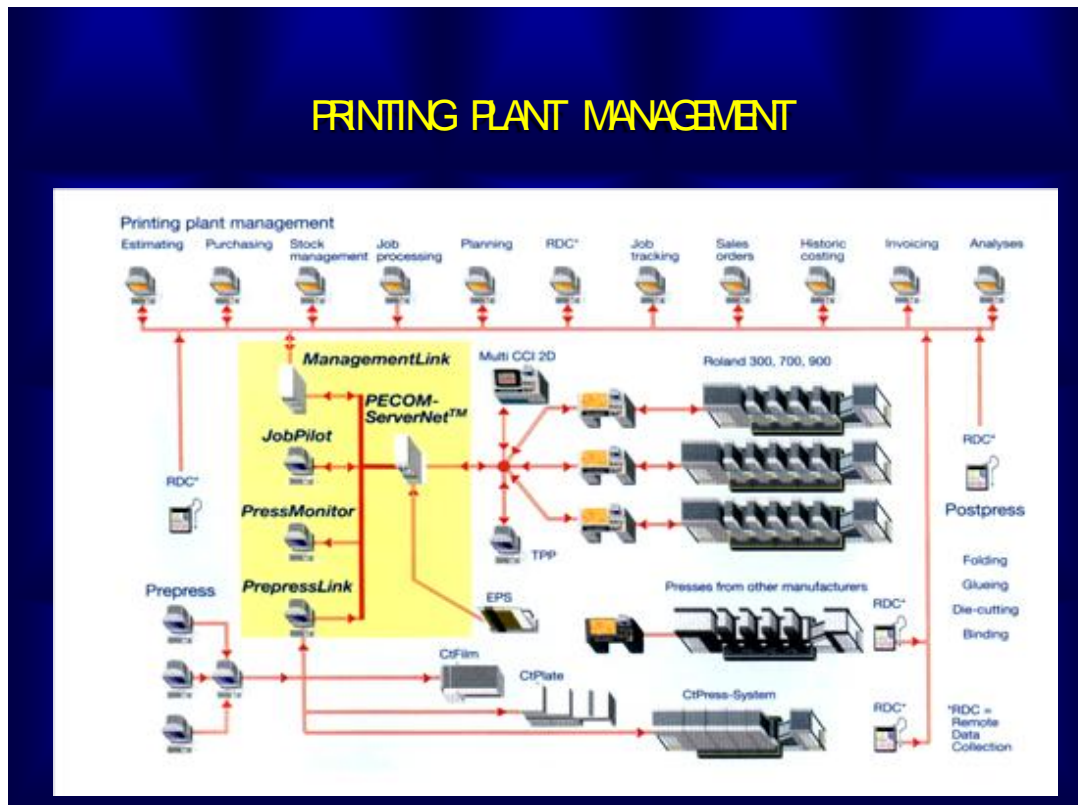


Figure 4. Printing plant management

Press process developments are:

1. Digital printing (Large Format Inkjet printers, color laser printers, inkjet ink – water-base and solvent base, UV ink).
2. Large format screen printing.
3. "Make Ready" Offset.
4. Computerized inking system.
5. Flexo printing (packaging, cigarette, cards, etc.).
6. Dry pigment ink raw materials (Flush).
7. Color and density calibration equipment.

Press and finishing post process development are:

1. Smart guillotine (intelligent cutting machine).
2. In - line finishing.
3. Type of varnish, laminate and machinery applications.

#### 4. Flexible packaging types and media intermediaries (adhesives)

Today, in Indonesia many printing house is implementing high technology in order to catch high quality of printing result, cost efficiency and effectiveness in time. For example PT. Kompas Gramedia and PT Temprina Jawa Pos, both is national company who run their printing business in newspaper, book publisher and packaging, for PT. Temprina Jawa Pos, they have their own pulp and paper factory with brand name Adi Prima, many printing house company make both of them for their standardization. At Indonesia still many national printing house company for example PT. Pura Barutama, this company specialized security printing, they printing some foreign countries moneys and National Money Hologram. This company also has their own pulp and paper manufacture, they produce money paper.

As seen on figure 5, for example, PT. Kompas Gramedia using space satellite in order to improve their printing speed and news networking in order to support their newspaper, brand “Kompas”. This system is also implemented at PT. Temprina Jawa Pos. That figure shows if Indonesian Printing Industry is improve and develop into technology era. In the future, other printing house will follow and implement this system with one condition it supported by appropriate and capable human resources.

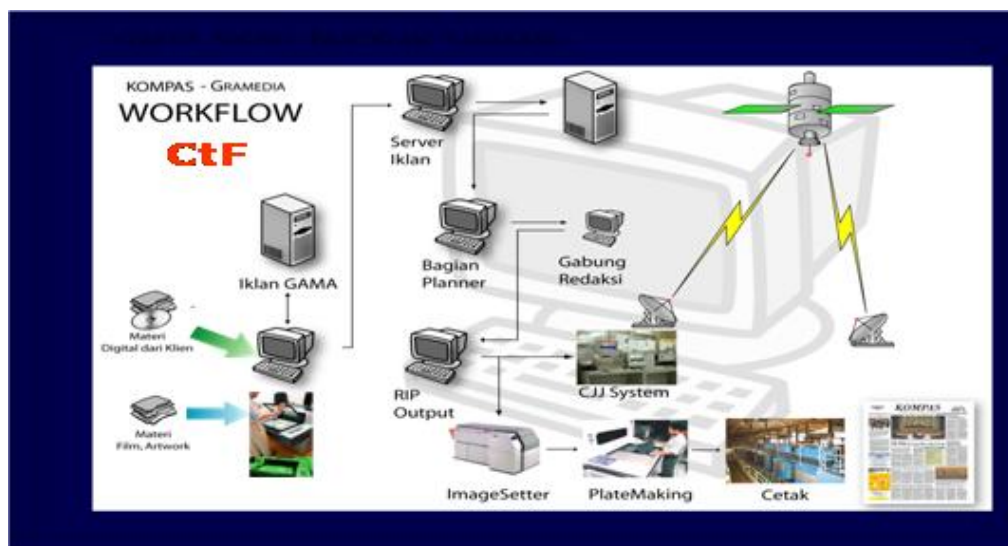


Figure 5. Prepress system status

In future development, flexo and rotogravure will be explode into Indonesia Printing Industry, this happen after many packaging industry think to use flexo. Digital Printing 4-5 years ago booming and almost move offset printing market, now digital printing at Indonesia decrease because of “price war”. Digital Printing at Indonesia have high dependency with momentum at Indonesia (political), although their quality good. For example president or government election party, digital printing for indoor and outdoor will be booming in the market. Book publisher, packaging, brochure or pamphlet people still prefer Offset printing rather than digital printing for capacity more than 1500 exemplar. Other consideration, Digital Printing still have problem, big air pollution. For home industry, it is big problem; solvent smelling is dangerous for lung.

## **2.1 Printing School Market In Indonesia**

The development of printing industry cannot be separated from education of the human resource. Education of graphic in Indonesia needs education in management level while recently technically supported by high school and diploma. For development of printing school in Indonesia we must see the SWOT analysis. SWOT Analysis as shown at table 3 and 4, describe about condition and situation for printing school market in Indonesia, especially university degree. In fact in Indonesia, many expert people in printing and graphic however they didn't have any appropriate educational background, they expert from field, (experiences), almost of them have educational basic only vocational high school. Only a few people graduated from Polytechnic (Diploma). Learn by doing is good; however they never know any standardization in this field. Learning from Foreign Country, Governmental support is needed. Through educational, hopefully it can make change Indonesian Printing Industry paradigm.

*Table 3. Strength and Opportunities of Indonesian Printing Industry SWOT Analysis*

<b>Strength</b>	<b>Opportunity</b>
<p>1. There are many printing and publishing companies at Indonesia which needs professional human resources for their company in order to implement Printing Standardization such as ISO, DIN, etc. Some of them propose us to provide kind of human resources that match with their needs.</p> <p>2. Printing and Publishing Industries at Indonesia always growth and develop although electronic book occur in book market, however Indonesian people still prefer read book use hard copy models. Although newspaper industries in Indonesia stagnant, for book and packaging still sweet like honey. Some of them need professional human resources.</p> <p>3. There are many new comers in Printing and Publisher Companies, from small scale until big scale</p> <p>4. Human Resources that capable in Industry, Printing and Graphic Engineer, Management, Leadership</p>	<p>1. Graphic Industries growth significantly, higher than Indonesian Economic Growth, around 5.3% (Bisnis Indonesia Online, 2012)</p> <p>2. Graphic Technical Education for the New College there are three in Indonesia, all located in Jakarta (capital city of Indonesia), Diploma Degree. The material taught in the application print knowledge (operators and technicians) rather than a whole (management, leadership, organization and design engineering and manufacturing to printing companies.</p> <p>3. In Indonesia has been no formal bachelor -level education that is specific to Graphic, especially for the leader (manager, general manager). The average is still the operator level and the maximum level of supervisor.</p> <p>4. Support from Industries, particularly the Printing and Graphic industries are very large, especially for formal education Graphic Techniques, and</p>



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<p>and Information System are high demand. They prefer their human resources well understand in industry Management and Engineer and Printing Graphic knowledge.</p> <p>5. There are many supports from National Printing Company.</p> <p>6. There are many supports from printing community.</p> <p>7. There are many establishing networking at Printing and Graphic Industry.</p> <p>8. Joint Cooperation with other printing school/university (regional or foreign) for curriculum, so we have standardization in curriculum determination.</p> <p>9. The need of competent human resources in managerial degree in Printing field is high.</p>	<p>their need for highly educated workers.</p> <p>5. Graphic market opportunities for education are huge. Especially in Central Java. The biggest population for printing company lies on Central Java.</p> <p>6. Printing-entrepreneur (entrepreneur who run their business in printing, graphic and media industries) still high potential.</p> <p>7. We have association that fully support in Graphic and Media Engineering such as ATGMI and Indonesian Printing Community.</p> <p>8. None formal Education for Graphic and Printing Engineer.</p> <p>9. Printing Industry need kind of human resources who capable and professional in printing-graphic with well understand Printing Standardization.</p>
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*Table 4. Weaknesses and Treats of Indonesian Printing Industry SWOT Analysis*

<b>Weakness</b>	<b>Threat</b>
<p>1. Expert person in printing and graphic engineering which have match education is rare. There are many experience peoples in Indonesia in this major. However they growth from self study that learned from field not from university. We need teachers who are experts and have a specific education in the field of printing and media. In accordance with the requirements of the government for teaching staff (lecturers) must have a basic education in accordance with the field of study and must be Master Degree.</p> <p>2. Lack of completeness of the supporting program of study graphic techniques, in particular equipment and laboratory work, due to limited funding and the cost of investment for the development of support tools, such as printing machines, machine pre-press and post press machine.</p> <p>3. Teaching methods and curriculum for the program graphic techniques and media studies in Indonesia are</p>	<p>1. Some of National Printing Companies, they believe foreign worker rather than local worker. Their consideration is quality and professionalism.</p> <p>2. Technology invention growth very fast for printing machinery. It will reduce Human Resources needed.</p> <p>3. Indonesian curriculum late to update also with supporting equipment for laboratory and training.</p> <p>4. Digital Printing has very fast innovation and offer simplicity. This is big threat for offset printing.</p> <p>5. Digital Technology will be big threat for newspaper industries in the world. It will be give impact for human resources if they still not qualified or updating their knowledge in modern printing industry.</p> <p>6. Printing media become stagnant and electronic media become trendsetter for some big cities.</p> <p>7. High quality and professional human resources highly needed. End user publish high requirement for</p>

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<p>lagged and lack of updates. We need a curriculum to suit the current technological advances and needed by the industry, both in Indonesia (regional) and International. In brief, we need the latest technology.</p> <p>4. Lack of standardization knowledge such as ISO in Indonesian Printing and Graphic Industry.</p> <p>5. Lack of supported book and journal in engineering fields.</p>	<p>this.</p> <p>8. Printing Standardization become critical requirements from customer. Especially in book publisher industry and packaging.</p>
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## **2.2. Improving Strategies in Educational**

In order to increase Indonesian Printing and Graphic Human Resources quality, we have some ideas, based on SWOT strategies as shown in table 5, such as:

1. Indonesian Government must support Printing and Graphic Industry.
  - a. Indonesian Government is possible to support and provide any projects that related with Printing and Graphic Industry with fair rules. It can stimulate Printing Industry growth. The project possible from internal or foreign.
  - b. Possibility for Indonesian Government to facilitate any investment that related with Printing and Graphic Industry.
  - c. Standardization for Printing and Graphic School curriculum by Minister of Education which link with Printing Industry.

Table 5. SWOT strategies for printing education

<b>Strength and Opportunity</b>	<b>Strength and Threat</b>
<ol style="list-style-type: none"> <li>1. Be Market Leader and Pioneer on Graphic and Printing University.</li> <li>2. All facilities in Universities that support printing and graphic engineering will be completely fulfilling, in order to teach about International Standardization. (ISO Based).</li> <li>3. Update all lecture, curriculum and recruit professional practitioner lecture.</li> <li>4. Join Cooperation with other printing school foreign and domestic.</li> <li>5. Penetrating industrial and university networking foreign and domestic Industrial network.</li> <li>6. Develop Industrial Networking through association and community.</li> <li>7. Develop International Printing Industry networking</li> </ol>	<ol style="list-style-type: none"> <li>1. Targeting the right market segment, although the mass media in stagnant condition however the packaging, book publishing, still huge potential.</li> <li>2. Equaling of curriculum and new teaching methods with newest curriculum through joint cooperation with foreign university.</li> <li>3. Updating educators in accordance with market demand.</li> <li>4. Expanding the network for the uptake of employment opportunities for graduates who have been standardized.</li> <li>5. MOU with big and national company for student job trainee programs.</li> <li>6. MOU with foreign university for equaling and curriculum standardization, lecture and student exchange program, joint research and scholarship program.</li> </ol>
<b>Weakness and Opportunity</b>	<b>Weakness and Threat</b>
<ol style="list-style-type: none"> <li>1. Making workshop, road show and introduce to related Industries, public, high school student, vocational student or any people</li> </ol>	<ol style="list-style-type: none"> <li>1. Follow Up and Maintain Graphics and Printing Industry.</li> <li>2. Joint-Cooperation with Government that related with printing and</li> </ol>

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<p>who interest to learn and study printing.</p> <p>2. Building website possible accessed in worldwide, and give information about printing industry in Indonesia opportunity.</p> <p>3. Focus on user needed for managerial level (leader).</p> <p>4. Joint Cooperation with printing and Media Company for training and internship program. This program for implementing teaches method using curriculum based on competency.</p> <p>5. Finding investment (domestic and foreign) for developing program in printing and graphic education industry.</p>	<p>graphic industries.</p> <p>3. Starting Standardization training for lecture.</p> <p>4. Developing connectivity with Graphic and Printing Industry.</p> <p>5. Developing connectivity with foreign university who has similar program.</p> <p>6. Strengthening the campus facilities and infrastructure in order to competitive and ensure that graduates have been standardized</p>
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- d. Stimulate National Manufacture for Printing Machinery with any interesting program from Indonesian Government or Foreign Investment. (National Product) Hopefully this idea can produce cheap machine with good quality and SMEs possible to buy it.
  - e. Government policy for loan facility (soft loan). It help for SMEs especially in printing and graphic industry (entrepreneur program).
2. Supporting by foreign investment and educational cooperation
- a. Scholarship for Indonesian student and lecture.
  - b. Join International research and journal in printing field.
  - c. Join cooperation between Indonesian University and Foreign University, in order to increase quality and standardization.
  - d. Guest Lecturer from foreign university

- e. Foreign investment at Indonesia is important.
  - f. Opportunity for Indonesian lecture to teach at foreign university.
3. Supporting by Industry is a must
- a. Link and Match Human Resources needed between industry and university it stimulate them to open Training Centre, and recruit many human resources from any field and train them, rather than recruit from graduated school but they still train them. It wastes time and money.
  - b. Industry can facilitate any printing and graphic student for job training and recruitment opportunity.
4. Supporting by Indonesian Department of National Education and Indonesian Department of Industry and Trade is important
- a. Producing potential and professional human resources which ready to compete with foreign human resources.
  - b. Stimulating new entrepreneur in printing field (printing-entrepreneur) with soft loan and lower interest rate.
  - c. Producing potential and professional human resources which link and match with Industry needed.
  - d. Curriculum based on competency is a must for printing and graphic school.

*Table 6 List of Formal Printing and Graphic Education*

<b>No</b>	<b>Description</b>	<b>Course (Non Degree)</b>	<b>Vocational High School</b>	<b>Diploma Degree</b>	<b>Bachelor Degree</b>
1	Printing	2	13	4	1
2	Design Graphics	100	59	100	50
3	Communication Media	75	-	37	17

*Source: Indonesian Ministry of Education, 2010*

### III. RESULT AND DISCUSSIONS

1. With the development of communication, technology and competition, customers have more and more choices for media promotion. Printing product still dominant and their first choice rather than other media. Their consideration beside cheap, technology era at Indonesia not well spreading. Internet booming only at big city and focus on Java Island. Other reason Internet Access at Indonesia not stable like foreign country.
2. Print quality and cost into consideration. In Offset printing it is not big deal, but for digital printing it gives impact in market. Cheap is favorable although low end quality because for temporary use.
3. Competencies of its human resources to be the primary choice in the graphic industry. Printing Education for Bachelor Degree and higher is needed. Vocational is many at Indonesia. Operator level normally came from printing vocational high school or diploma degree, but for leader or managerial level minimum requirement bachelor degree unfortunately at Indonesia there is no specific bachelor degree in printing. UNISBANK develop this degree however for lecture is limited.
4. Labor force field of printing/graphics increased, since printing industry growth significant, the demand for this industry also increase.
5. SMEs (small medium enterprise) in printing also growth significantly every year almost 5.7%. Their business from printing broker, digital printing, screen printing until offset printing.

#### **IV. CONCLUSION**

1. Printing product is needed every day in human life, for business, packaging, invitation, book, newspaper etc., all printing product that human life always use it. Printing never die, people still have high dependency with printing product.
2. Graphics technology continues to evolve at any time.
3. Flourishing printing industry in Indonesia, in proven by the using of paper database from pulp and paper manufacture.
4. World of work in the printing industry field is wide open, the opportunity still wide open.
5. Necessary human resources have competence in the field of engineering graphics, graphics management, and other matters related to the graphics. This is good opportunity to get foreign cooperation to develop this degree in order to fulfill industry demand.
6. Human Resource who has good skill and capability is needed.
7. Printing Industry at Indonesia still interactive and increase year by year. For foreign investment is wide open in order to improve the quality of human resource and make the printing industry market become more competitive.
8. High quality printing product become concerned for many Printing Houses, also ISO standardization is a must. Since some national printing company expand their market to International.



## REFERENCES

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## DAFTAR RIWAYAT HIDUP PENELITI

### Ketua Peneliti

Nama : S. Adi Susanto, SE, MM, Intl'Buss  
NIY : YK.2.11.11.091  
Pangkat / Golongan : Penata Muda / III-A  
Jabatan Fungsional : Tenaga Pengajar  
Tempat dan tanggal lahir : Tegal, 09-05-1977  
Fak/Program Studi : Teknik/Teknik Industri Unisbank  
Alamat kantor : Jl. Tri Lomba Juang No. 1, Semarang  
Telpon/Faks : 024-8311668/8443240  
Alamat rumah : Kampoeng Seawis Blok I No 8, Semarang  
Telp. Rumah : 08156887914  
Pendidikan terakhir : S2 Magister Manajemen UGM  
Bidang keahlian yang ditekuni : - Manajemen Bisnis  
- Teknologi Grafika  
- Teknologi Manufaktur

### Pengalaman kerja

No	Perusahaan	Jabatan Terakhir	Tahun
1	PT Sejati Printng Service	Production and Distribution Manager	1995 -
2	PT Alcorp Waringin Kiaryatama	Deputy General Manager	1998-2001
3	Erasmus Universiteit, Rotterdam	Market Analyst and Business Development	2002-2003
4	Konijnklike Phillips Electro V, Amsterdam	Business Development and Market Analyst	2003-2007

5	Erasmus Universiteit, Rotterdam	Consultant and Professor Assistant for Doctoral Programme	2004-2007
6	PT Hitachi Construction Machinery Indonesia	Market Analyst, Commerce and Business Development GM	2007-2010
7	PT ICP PRIMA	Director	2010 -
8	Universitas Stikubank	Staf Pengajar	2011 -

Pengalaman penelitian

No	Penelitian	Keanggo taan	Tahun	Publikasi
1	Perancangan dan Pengembangan Perangkat Lunak Pengendalian Produksi Grafika	Anggota	2011	Dinamika Teknik

Demikian riwayat hidup kami tulis dengan sebenarnya

Semarang, 20 November 2012

S. Adi Susanto, SE, MM, Intl'Buss

NIY. YK. 2.11.11.091

## Anggota Peneliti

Nama : Dr. Dra. Lie Liana, M.MSI  
NIY : Y.2.92.07.085  
Pangkat / Golongan : Pembina Utama Muda / IV-C  
Jabatan Struktural : Ketua LPPM  
Jabatan Fungsional : Lektor Kepala  
Tempat dan tanggal lahir : Kutoarjo, 3 Maret 2012  
Fak/Program Studi : Ekonomi/Manajemen  
Alamat kantor : Jl. Tri Lomba Juang No. 1, Semarang  
Telpon/Faks kantor : 024-8311668/8443240  
Alamat rumah : Jl. Brigjen Katamso No. 20 Semarang  
Telp. Rumah : 08164255435  
Email : lie\_ay@yahoo.com  
Pendidikan : - S1 Pdd. Matematika IKIP Sanata Dharma  
Yogyakarta  
- S2 Sistem Informasi Bisnis Universitas  
Gunadarma Jakarta  
- S3 Ilmu Ekonomi Universitas Merdeka  
Malang  
Bidang keahlian yang ditekuni : - Manajemen Produksi/Operasi  
- Metodologi Penelitian  
- Statistika  
- Matematika Ekonomi dan Bisnis

### Pengalaman penelitian

No	Penelitian	Keanggotaan	Tahun	Publikasi
1	Analisis dan Perancangan Web Ujian Nasional Bidang Matematika bagi Siswa SMA	Ketua	2008	Dinamika Ekonomi
2	Arisan Smart sebagai Media Menyumbang, Menabung, dan Berinvestasi	Ketua	2009	Dinamika Ekonomi

3	Pengaruh Hubungan Industrial terhadap Produktivitas Tenaga Kerja pada PT. Benang Pisma Putra Tekstil Pekalongan	Ketua	2009	Dinamika Ekonomi
4	Analisis Pengaruh Kompensasi dan Penilaian Kinerja terhadap Kinerja Dosen pada Universitas Stikubank (UNISBANK) Semarang"	Ketua	2010	Dinamika Ekonomi
5	Analisis Perbandingan Perencanaan Persediaan Bahan Baku Menggunakan Metode Just In Time (JIT) dengan Economic Order Quantity (EOQ) (Studi Kasus PT. Pisma Putra Tekstil	Ketua	2010	Dinamika Ekonomi
6	Analisis Kinerja Suppy Chain Management (SCM) untuk Meningkatkan Keunggulan Kompetitif pada PT. Perkebunan Nusantara IX-PG Sragi Pekalongan	Ketua	2011	Dinamika Ekonomi
7	Analisis dan Perancangan Web Ujian Nasional Bidang Matematika bagi Siswa SMA	Ketua	2008	Dinamika Ekonomi

Demikian riwayat hidup singkat kami.

Semarang, 20 November 2012

Dr. Dra. Lie Liana, M.MSI  
NIY. Y.2.92.07.085

## Anggota Peneliti

Nama : Antono Adhi, S.Kom, MM, MT  
NIY : YU.2.08.10.077  
Pangkat / Golongan : Penata Muda Tk.I / III-B  
Jabatan Struktural : Dekan Fakultas Teknik  
Jabatan Fungsional : Asisten Ahli  
Tempat dan tanggal lahir : Semarang, 5 Januari 1970  
Fak/Program Studi : Teknik/Teknik Industri Unisbank  
Alamat kantor : Jl. Tri Lomba Juang No. 1, Semarang  
Telpon/Faks kantor : 024-8311668/8443240  
Alamat rumah : Jl. Keruing Barat Dalam 115,  
Semarang  
Telp. Rumah : 024-7471909, 08159438934  
Email : antonoadhi@yahoo.com  
Pendidikan : - S1 Teknik Komputer ITS  
- S2 Teknik Industri ITS  
- S2 Manajemen Universitas Stikubank  
Bidang keahlian yang ditekuni : -Pemrograman dan Basis Data  
- Perencanaan dan Pengendalian  
Produksi  
- Ekonomi Teknik  
- Kecerdasan Buatan

### Pengalaman kerja

No	Perusahaan	Jabatan Terakhir	Tahun
1	PT. Infoglobal AutOptima Surabaya	Analisis dan Desainer Sistem	1995-2004
2	Universitas Stikubank Semarang	Dekan FT	1996-2012

Pengalaman penelitian

No	Penelitian	Keanggotaan	Tahun	Publikasi
1	Pembuatan Pupuk Dari Fermentasi Buah Dengan Desain Eksperimen Menggunakan Metode Taguchi	Ketua	2012	Dinamika Teknik
2	Perancangan Dan Pengembangan Perangkat Lunak Pengendalian Produksi Grafika	Ketua	2011	Dinamika Teknik
3	Perancangan Sistem Penjadwalan Produksi dengan Menggunakan Program Visual Basic	Anggota	2010	Dinamika Teknik
4	Perancangan dan Pengembangan Perangkat Lunak Perencanaan Kebutuhan Material	Ketua	2010	Dinamika Teknik
5	Analisa Perancangan Sistem Perencanaan Pengendalian Produksi	Anggota	2009	Dinamika Teknik
6	Analisa dan Perancangan Sistem Informasi Pengadaan Barang	Anggota	2009	Dinamika Teknik
7	Penentuan Alat Transportasi Pengiriman Beras untuk Efisiensi Biaya dengan Metode Heuristik (Studi Kasus di PT Umbul Berlian Semarang)	Anggota	2008	Dinamika Teknik

Demikian riwayat hidup singkat kami.

Semarang, 20 November 2012

Antono Adhi, S.Kom, MM, MT

NIY YU. 2.08.10.077

**The 2012 Asian Symposium on Printing Technology (2012 ASPT)**



**-Challenges of Printing Science and Technology towards ASEAN Community-**



Dept. of Imaging and Printing Technology, Chulalongkorn University  
The Japanese Society of Printing Science and Technology

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19 July 2012

**Dr. Adi Susanto**

Head Department of Printing Engineering and Management  
University of Stikubank, Semarang  
Indonesia

Dear Dr. Adi Susanto

It is our great pleasure to invite you as an Invited speaker for the 3<sup>rd</sup> 2012 Asian Symposium on Printing Technology (2012 ASPT) – **Challenges of Printing Science and Technology towards ASEAN Community-**. It is organized by Dept. of Imaging and Printing Technology, Chulalongkorn University and The Japanese Society of Printing Science and Technology. This event will be held on September 21st and 22nd in the GASMA PRINT Exhibition at BITEC, Bangkok, Thailand.

Your topic will be **“Indonesian Printing Industry Trends, Current Technology and Future Development”**. Presentation time is 30 minutes, including Q&A. Full manuscript should be submitted via [www.gasmaprint.com](http://www.gasmaprint.com), before 16 August.

Your travel fare will be supported by the organizers. Accommodation from 20th -22nd for two nights is arranged at the Ambassador Hotel, Sukhumvit Road. It is easy to access the BITEC exhibition hall by a sky train.

If you have any question, please contact the organizer at [gasmaprint@kingsmen-cmti.com](mailto:gasmaprint@kingsmen-cmti.com) or [aran@sc.chula.ac.th](mailto:aran@sc.chula.ac.th)

Thank you for your acceptance and we are looking forward to seeing you soon.

Sincerely yours,

(Associate Professor Aran Hansuebsai)  
2012 ASPT Chair