

## Egyptian Printing Technology Centre



Vol. II: The Business Plan

2006

# Declarations

Level (Egypt) expresses its gratitude for being selected by The Industrial Modernization Centre (IMC) as 'The Consultant' conducting and managing this important study.

The work was carried out in partnership with:

- The Ministry of foreign trade and industry
- The Industrial Modernization Program
- The steering committee for the Printing sector
- Many stakeholders from the printing and supply industries

Thanks are due to all the Steering committee members and the IMC management team mentioned below, for their heartfelt, professional and hands-on guidance throughout the course of this study:

<ul style="list-style-type: none"><li>• Mr. Hamdi Elkobaisy</li><li>• Mr. Samuel Beshay</li><li>• Mr. Ashraf Darwish</li><li>• Mr. Ahmed Khattab</li><li>• Mr. Ayman Elkhoully</li></ul>	<ul style="list-style-type: none"><li>• Dr. Nihal Elmegharbel</li><li>• Mr. Ahmed Rizk</li><li>• Mr. Ayman Farouk</li></ul>
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Finally, the team from Level contributing to this project was constituted of:

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|---------------------------------|--------------------------------------|
| ▪ Dr. Eng. Ahmed Elsayad        | President of Level & Project Manager |
| ▪ Dr. Phil Green                | Senior International consultant      |
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| ▪ Eng. Nora Abdelhadi           | Project Coordinator                  |
| ▪ Prof. Dr. Eng. Samir Elsayyad | Backstopping expert                  |

This new study, prepared by "The Consultant", has been designed to assist all interest groups and the Printing sector at large, in achieving their overall aims.

# Forward

The overall aim of this contract is to prepare the establishment plan and the business plan of first year of operation of a new state-of-art Egyptian Printing Technology Centre, export led and demand driven, capable of offering and sustaining high quality, much-needed, services to industrialists within the Printing sector in Egypt.

The mission of the Egyptian PRTC is to provide customers with the essential services fulfilling their needs, improving their competitiveness, empowering them to boost their business effectively and allowing them to integrate in global supply chains. All these lead to higher levels of sustainable growth and productivity fuelled from within.

IMC, within its own scope of objectives, is preparing this study to lay the ground for the introduction of PRTC in the second wave of technology centres to be implemented by MFTI.

# The Egyptian Printing Technology Centre

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# EXECUTIVE SUMMARY

The information in this business plan report is presented under several main subtitles, namely: year one objectives, the marketing plan, the action plan, the capital investments, the financial plan/feasibility study, and the implementation plan/timeline.

Printing is increasingly purchased on the global market. Print buyers have increasing expectations of quality, service and competitive pricing. The IMC printing sector strategic study has indicated that the Egyptian printing industry does not compete effectively on quality and service; and while labour costs are relatively low, this will not provide a long-term advantage as automation in prepress and printing increases.

Print buyers expect a consistent level of quality from all suppliers, and their fundamental expectation is that their proof will be matched accurately. This expectation of predictable colour reproduction can be met by the adoption by the printer of the relevant graphic technology standards developed by ISO and other professional bodies.

The implementation of these ISO, ASTM, TAPPI, etc. standards in the Egyptian printing industry, together with solutions to technical and skills problems in the industry, requires a well-resourced technology centre that can provide technical leadership and resources to the industry.

The government of Egypt has given high priority to export development, and an overall strategy has been formulated covering all sectors of the economy that have to be mobilised for that purpose. Egypt has a unique position in producing cultural and various media products amongst the Arabic speaking countries. In addition, geographically it can be an important hub for printing jobs to many other countries. The printed matter exports are expected to be much more significant than it currently is.

Printing is an industrial activity which is directly related to the executed graphic designs of packages and labels. Open markets necessitate sophistication in printing and continuous development which needs stringent specifications between the printer and print buyer.

To have a positive influence, the PRTC must follow the market needs: it is a requirement to reach optimisation and performance. The PRTC, like any other business organization, must offer services required by companies that it claims to help.

Thanks to the intervention of the PRTC, companies will be able to ensure the technology transfers and to fill the gap between Egyptian companies and their foreign competitors.

## The International Printing Market

The main features indicate that:

- Printing is increasingly purchased on the global market, and
- Print buyers have increasing expectations of quality, service and competitive pricing.

On the local front, the IMC sector study has indicated that the Egyptian printing industry does not compete effectively on quality and service. Low labour costs will not provide a long-term advantage in competitiveness, as automation in prepress and printing increases. Print buyers expect a consistent level of quality from the same supplier and all other suppliers, and demand an ability to match a proof accurately, wherever the product is printed - but the printer may not actually see a hard copy proof. Some bilateral, regional and multilateral agreements have impact on internationalisation and optimisation.

It was foreseen that PRTC should become operational in the first year after launch in:

- Testing of printing materials (various substrates) and prints (using various printing methods)
- Training programmes

- Information services
- Consultancies/Trouble Shooting and Technical Support

## Year One Objectives And Activities

The development objective is the improvement in the competitiveness of Egyptian printed exports through better publication products and better printing for export packaging.

The immediate objective is the establishment of a comprehensive fully fledged printing centre to provide information, training, technology transfer, laboratory testing and technical support to exporting enterprises in Egypt.

At the end of the first year (establishment year), the aim is that the premises are fully operational with all fittings and decoration completed.

The immediate objective for equipment is to establish a number of laboratories equipped with capability to provide specialised testing services as well as R&D activities in support to the printing and allied industries.

As to the technical activities, specific testing capability will be available from PRTC with regards to:

- Paper Characterization
- Ink Characterization
- Print Performance and Evaluation Criteria
  - *Printability*
  - *Runnability*
- Colour & Appearance Measurement
- Print Quality Analysis
- Print Trials - Tests on Press

During the establishment year, the Centre will recruit its core staff and arrange for their training (locally and overseas).

By the end of the first year, the full complement of staff will have been appointed, including retained international consultants.

The number of the PRTC staff should be around 20 persons. That is the minimum staff required to reach the PRTC objectives. The number of staff will be increased as the volume of work load increases.

## The Marketing Plan

The period leading up to the Centre launch, and the first year of operation, will be critical in generating awareness of the Centre and stimulating demand for its services. The marketing activity in this initial phase will have three principal objectives:

- 100% awareness of the Centre amongst the target audience of the Egyptian printing industry and its chain suppliers (ink manufacturers, Paper manufacturers, Adhesive manufacturers, environmentalists, insurance companies, financing institutions, foreign suppliers, print buyers, etc.)
- Recognition of the value proposition of the Centre by the target audience
- Development of the elements of the Centre marketing plan (see below).

## Centre Activities

During the pre-launch period and the first year of operation, the Centre will be establishing the basis for its continuing operations. It will need to market-test the planned services during this period, in order to ensure that the mix of services can meet the demand from the industry in a cost-effective and timely manner.

***The following are proposed as the core of the Centre activities for the pre-launch and Year One period:***

### Training Courses

A major task is the development of a suite of training courses on general and sectoral subjects of printing technology, which support the implementation of standards and which respond to the general needs for education and training within the industry, for operators, supervisors, middle and top management. Selection will be made from a host of training modules giving the basic and the specialised knowledge.

In the first year of operation, the following courses are recommended:

- Print quality assessment based on ISO 13655 and ISO 3664
- Process control to ISO 12647
- Interpreting customer files
- Soft proofing to ISO 12646

### Consultancy Activities/Arbitration and Trouble Shooting

The Establishment Plan refers to consultancy services in responsive, proactive and intermediate modes.

Backed by the PRTC resources, *Consulting Services' capabilities cover all aspects of the printing business including:*

- Business and financial management
- Sales and marketing
- Prepress
- Press room and finishing operations
- Quality management systems

*For each of the potential services listed above, details are given here of the way in which Centre expertise would be delivered to the client. Depending on the particular requirement, all or some of the number of steps would be involved in the final package.*

#### *Consultancy Service Details*

- Procurement
- Contract Bidding
- Production Planning
- Systems Integration
- Quality Assessment
- Conflict Resolution
- Implementation of Standards
- Testing and print evaluation

It is proposed that these services are tested with a very small number of companies at an early stage in the Centre operations. The purpose of these early implementations will be to generate a 'success story' in each area of activity, which can subsequently be used to promote the activity and services. These test implementations will also permit fine-tuning of the service delivery and help to build a base of expertise at the Centre.

The summary of capital costs suggests a total investment of \$4646000 and without the option of acquiring a press and post press equipment the total is reduced to \$1646000.

## **The Financial Plan/ Feasibility Study**

### **Financial Objectives**

At the end of the first year, the Centre will aim to:

- generate a level of activity in which the revenue from all sources matches the operating costs of the Centre
- Demonstrate a rising level of activity and a sound financial projection for continuing operation

The cash flow demonstrates that only the first full operation year will be in deficit.

The consultant recommends that the PRTC be established fully-operational at launch.

Finally, the PRTC should offer:

- A consistently high quality of service, through highly competent staff and appropriate technical resources.
- Primary services required to assist the industry to achieve international competitiveness are consultancy and training.
- A press centre within the PRTC is optional. It will be difficult to sustain the cost of operating a printing press, even if the capital costs do not have to be recovered. If decided to adopt, this can be a phase 2 of the project.
- Testing for international competitiveness should be focused on ISO standards conformance.

# THE BUSINESS PLAN OF THE EGYPTIAN PRINTING TECHNOLOGY CENTRE (PRTC)

## Introduction

Printing is increasingly purchased on the global market. Print buyers have increasing expectations of quality, service and competitive pricing. The IMC sector study has indicated that the Egyptian printing industry does not compete effectively on quality and service; and while labour costs are relatively low, this will not provide a long-term advantage as automation in prepress and printing increases.

Print buyers expect a consistent level of quality from all suppliers, and their fundamental expectation is that their proof will be matched accurately. This expectation of predictable colour reproduction can be met by the adoption by the printer of the relevant graphic technology standards developed by ISO Technical Committee 130.

The implementation of these ISO standards in the Egyptian printing industry, together with solutions to technical and skills problems in the industry requires a well-resourced technology centre that can provide technical leadership and resources to the industry.

The Egyptian printing industry is one of the main local industries, affecting & contributing to most of the other industries. The Egyptian printing market breaks down into two major product groups:

- Publication Printing(including newspaper & magazines, Books , Commercial, and
- Packaging Printing

The government of Egypt has given high priority to export development, and an overall strategy has been formulated covering all sectors of the economy that have to be mobilised for that purpose. Egypt has a unique position in producing cultural and various media products amongst the Arabic speaking countries. In addition, geographically it can be an important hub for printing jobs to many other countries. The printed matter exports are expected to be much more significant than it currently is.

One key element in this strategy is to ensure a proper adaptation of Egyptian products that are already exported to the requirements of foreign markets, thus increasing their competitiveness.

Egypt exports a wide range of products and has relatively advanced technology in many sectors. A significant proportion of its exports are finished products that are destined to be used directly by the consumers abroad without further processing.

For this reason it is most important that in quality and presentation Egyptian products should match the conditions offered by competitors. Export packaging adapted to target market distribution systems, and design suited to the preference of consumers, are essential aspects of product adaptation.

Printing is an industrial activity which is directly related to the executed graphic designs of packages and labels. Open markets necessitate sophistication in printing and continuous development which need stringent specifications between the printer and print buyer.

### ***The economic impact of the project***

The impacts and effects expected from the establishment of the Egyptian Printing Technology Centre PRTC are expected to be significant.

In addition to the quantifiable economic repercussion, the implementation of the PRTC will have to lead to the development of the printing and packaging sectors, to the improvement of national production quality and at the same time to increase exportation.

The basic demand on prints is that it must be attractive and to have many resistance characteristics. Many printed products are transported over long distances and are exposed to great stresses. Product losses and damage incur economic losses and are also a waste of resources.

### **Features of International Printing Market**

- Printing is increasingly purchased on the global market
- Print buyers have increasing expectations of quality, service and competitive pricing.
- The IMC sector study has indicated that the Egyptian printing industry does not compete effectively on quality and service.
- Low labour costs will not provide a long-term advantage in competitiveness, as automation in prepress and printing increases.
- Print buyers expect a consistent level of quality from all suppliers.
- Print buyers demand an ability to match a proof accurately, wherever the product is printed - but the printer may not actually see a hard copy proof.
- Some bilateral, regional and multilateral agreements have impact on internationalisation and optimisation

### **The Role of Standardization**

- Print buyers expect consistent and predictable results
- The printer needs a clear and unambiguous specification of the finished product
- These requirements are reconciled by the adoption of standards
- ISO TC 130 has developed a set of standards in Graphic Technology which provide a basis for specifying the final product
- The standards are achievable and have realistic tolerances

### **ISO TC 130 activities:**

- PDF/X file format (ISO 15930)
- Digital test images and characterization targets (ISO 12640)
- Colour measurement procedures (ISO 13655)
- Printing ink colours (ISO 2846)
- Process control and standard printing processes (ISO 12647)
- ICC profile specification (ISO 15076)
- Viewing conditions for prints, proofs and displays (ISO 3664)
- Colour monitors for soft proofing (ISO 12646)

The approach of PRTC has to be based on giving increased possibilities for trade and industry towards branding, increased marketability reduce product loss, reduce environmental impact and benefit economy.

In the present economic analysis, we will retain the two following advantages to justify the creation of the PRTC:

- The first advantage is related to the expected growth in exports of printed matter (books, magazines, newspapers, commercial, etc)
- The second advantage concerns the reduction of the losses and damages of exported products due to bad marketability of inferior package design and printing, in addition to the additional growth in printed packaging exports.

## **Market Orientation**

To have a positive influence, the PRTC must follow the market needs: it is required to reach optimisation and performance. Like any other business organization, The PRTC must offer services as required by companies that it claims to help.

With the globalisation of markets, the Egyptian companies require support services to mitigate the insufficiencies and to solve the various difficulties which they face, in order to improve their positioning regarding global competition.

This way of proceeding opens new markets for small and medium-sized companies. These companies constitute the principal costumers of PRTC who is able to intervene to assist them, so that they can be in conformity with international quality standards.

Thanks to the intervention of the PRTC, companies will be able to ensure the technology transfers and to fill the gap between Egyptian companies and their foreign competitors, and prospect partners.

## **Features of International Printing Technology Centres**

- Revenue generating activities are membership, consultancy, and training - plus occasional state funding
- Services are adapted to needs of industry, and are continually changing over time
- A high level of expertise is offered by technology specialists
- Original research is only carried out by Centres with state support
- Technology specialists are active in industry forums and in ISO committees

*The most significant stages that the PRTC must adopt are:*

The regular analysis of companies' demands and the formulation of their targets and needs.

- The search of information about the most up dated and innovative technology.
- The choice of better adaptation between the product and the technologies.
- The identification of potential suppliers to the industry.
- The implementation of new and up dated technology.
- The homologation of printing industry equipment and the conformity certification of products
- The set up of companies' training needs inventory.

*It was foreseen that PRTC should become operational in the first year after launch in:*

- Testing of printing materials and prints
- Training programmes
- Information services
- Consultancies/Trouble Shooting and Technical Support

# 1. YEAR ONE OBJECTIVES AND ACTIVITIES

## 1.1 OBJECTIVES

The development objective is the improvement in the competitiveness of Egyptian printed exports through better publication products and better printing for export packaging.

The immediate objective is the establishment of a comprehensive fully fledged printing centre to provide information, training, technology transfer, laboratory testing and technical support to all printing enterprises in Egypt.

### Development Phases:

The strategy of development of the PRTC will be deployed in two phases,

- The 1<sup>st</sup> phase lasts 2 years, of investment and consolidation, covering the period from 2006 to 2007, and
- The 2<sup>nd</sup> lasting 3 years, of extension and diversification of the activities beyond 2007.

*First Phase 1: 2006 – 2007 objectives are as follows:*

- 1- The implementation of the premises and the technical equipment within laboratories.
- 2- Planning training and assistance programs for centre staff.
- 3- Preparation of the accreditation of the laboratories.
- 4- Development of programs to improve the quality of printing and to promote the printing industry.
- 5- Harmonizing the Egyptian printing standardization with the international regulations.
- 6- To address the urgent and priority preoccupations of the printing society.
- 7- To work actively in the regulation and the organisation of the printing sector in order to improve its products and its performances.

*Phase 2, 2007 – 2011 will pursue the following goals:*

- 1- To extend the services and to widen the customers target of PRTC in response to new concerns and priorities of sector professionals and the environment.
- 2- To be in phase/accordance with the technological developments concerning the printing sector.
- 3- To enrich and diversify technical support activities to and promotion of the printing sector.

## 1.2 ACTIVITIES

### 1.2.1 Premises

The Centre will identify land and commission the construction of the building and preparation of utilities required. Alternatively, the Centre will identify premises and commission the preparation of utilities required before taking possession of the building, including mains water and electricity, drainage, construction of internal walls and partitions, internal decorations, provision of facilities such as lavatories and staff kitchen, and the fitting of benching as required for Centre equipment.

Depending on the schedule for moving to the Centre premises, it may be necessary to have a temporary facility where the Centre operations can be planned, in order to minimise the time before the launch and ensure that the action plan milestones can be met. In this case, some elements of the implementation plan will be developed at the temporary facility, and some centre services may be delivered from this site.

At the end of the first year (establishment year), the aim is that the premises are fully operational with all fittings and decoration completed. The full details on the premises are included in Vol. I of this study.

## 1.2.2 Equipment Specifying and Procurement

The immediate objective here is to establish a number of laboratories equipped with capability to provide specialised testing services as well as R&D activities in support to the printing and allied industries.

Specific testing capability will be available with regard to:

- Paper Characterization
- Ink Characterization
- Print Performance and Evaluation Criteria
  - Printability*
  - Runnability*
- Colour & Appearance Measurement
- Print Quality Analysis
- Print Trials - Tests on Press

The schedule of the main tests which will be expected to be performed in part at the laboratories is as follows:

- Optical properties
- Working properties
- End use properties
- Paper testing
- Print testing
- Plate testing
- Fountain solution testing
- Film testing
- Bindery testing

The detailed schedule of the tests and an indication of the instruments and standards used for each test is elaborated in the Annexes of this volume.

According to local demand and after visiting companies during the pre-launch period, the testing methodologies which will be utilized for performance of the tests are analyzed, and recommended.

All equipment will be acquired and installed during the first year (establishment year), which ends by the launch (except where the equipment specified is not available within this period which is unlikely).

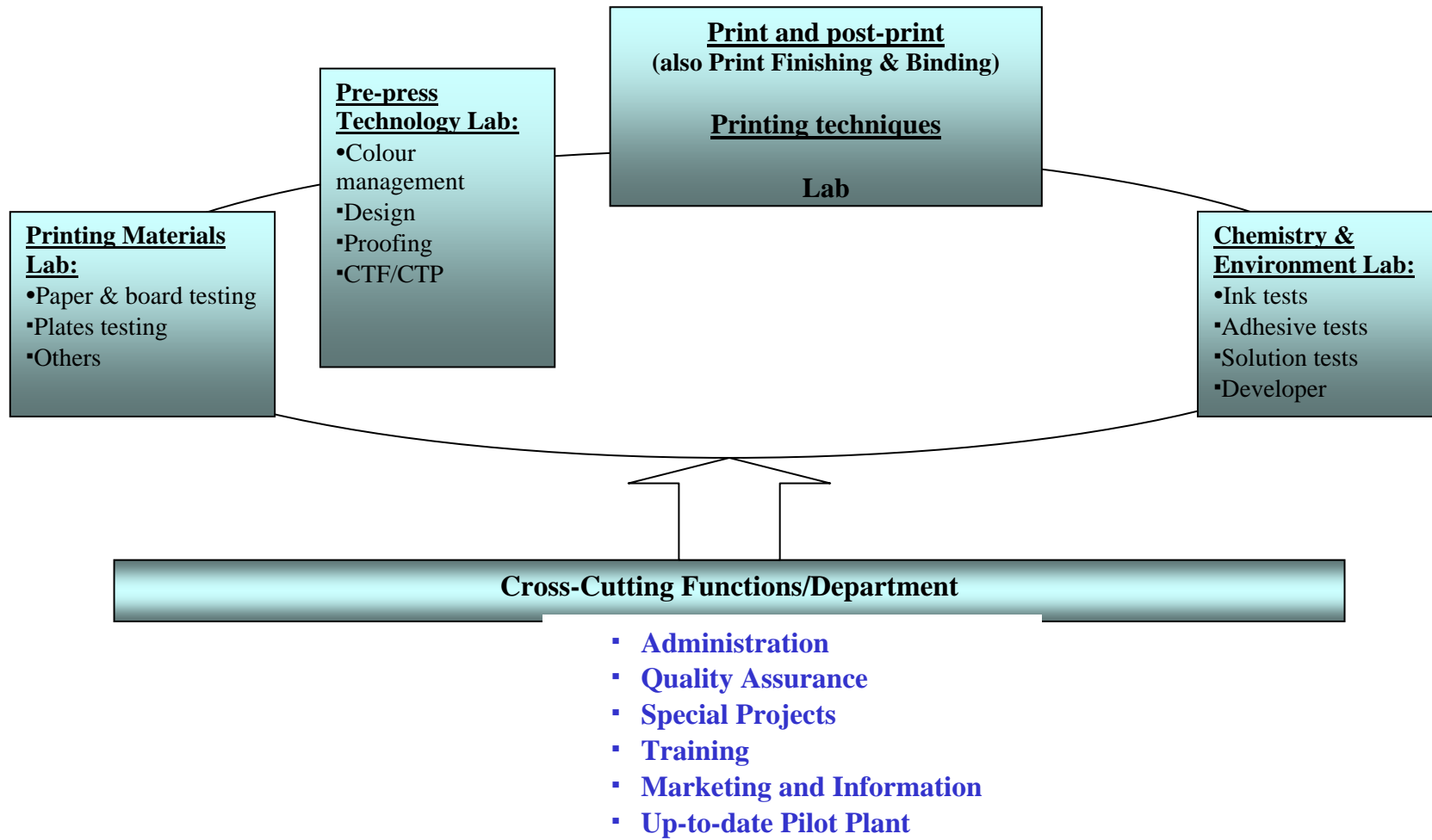
Each item of equipment:

- should have a member of staff competent in its operation
- a maintenance schedule and
- a manual with operating and safety instructions.

*Where the equipment is for test or measurement purposes, it will also have*

- a calibration procedure, and
- a method for assuring traceability of test or measurement results to an appropriate standardizing laboratory. This information will be provided to clients of the centre.

As indicated in the establishment plan, the distribution of the equipment will be based on the following laboratories:



### ***Installation of test equipment***

All the equipment ordered has to be installed and some of it e.g. the press and post press equipment require special foundation and/or services. Help from the equipment suppliers can be expected and can be part of the supply contract, but generally PRTC must take responsibility to install, commission and calibrate.

### ***Commissioning and calibration***

Becoming familiar with the operation of the equipment, procuring ancillary equipment and especially the calibration of the equipment can be quite a lengthy process. It is strongly recommended that the standard test methods of the international standards organization (ISO) be used wherever possible, and that the calibration be based on those standards.

Each laboratory must ensure that the results being obtained are in line with those being produced by similar laboratories throughout Europe. One way to establish this for the materials laboratory is to join the PIRA-UK calibration service, which periodically collects tests of standard materials from some 50 laboratories throughout the world, and collects and reports these results so that any laboratory can see how their figures relate to the others. At least for the first year, this service is vital, but it should be started separately for each piece of equipment only when the local staff is satisfied that it is fully operational and they are skilled in its use.

### ***Test procedures***

There are many standard test methods in existence, from ISO, ASTM, TAPPI, BSI, AFNOR, FEFCO, DIN, etc. but these cannot be applied directly to the laboratory equipment. They constitute the bases on which detailed test procedures are written, giving precise instructions on how each piece of test equipment is to be used when carrying out specified testing routines that can be understood and followed by laboratory technicians. This is important for any laboratory, but as PRTC intends to give training courses to industrial personnel which will include understanding and operating the many pieces of test equipment, clear procedures for use by trainees will be absolutely essential. There are many of such procedures to be developed and written (in Arabic) covering the work of the materials, printing technology, print performances, ink laboratories. An example of such a procedure is included as Annex ...

For the material laboratories the development of these test procedures will be reasonably clear cut, but will require a great deal of effort to complete. For the press centre, there are many standard test procedures carried out on the various pieces of test equipment but as test schedules are designed to fit different conditions, skills in interpretation are more important than skills in carrying out the tests.

The success of the PRTC's consultancy service will depend to a great extent on a fast and efficient testing service. While the eventual proof of a new product must come from its application in real life situations, the laboratory should be where likely winners are sorted from non-starters and false leads. This is especially true for the testing of prototype designs, which is seen as an important activity for PRTC.

To be welcomed in organizations that are struggling to resolve important practical problems, one has to have something to contribute and one of the important contributions PRTC can make is the fast, accurate, measurements and testing as trouble shooting or arbitration disputes. For example, what the standards committees need most from the laboratories is a fast, reliable and independent, testing ground to help resolve the often conflicting view points of their committee members.

### ***Additional equipment and building modifications***

Provision should be made, both in time and financially, for additional equipment, the need for which will emerge as the existing equipment is brought into use. Although every effort has been made to foresee the likely activities of PRTC and to plan the facilities accordingly, it must be expected that some modifications to the building will be required and make allowance for them in the programme. Just what modifications are required will probably not become apparent until PRTC is some months into its preparations.

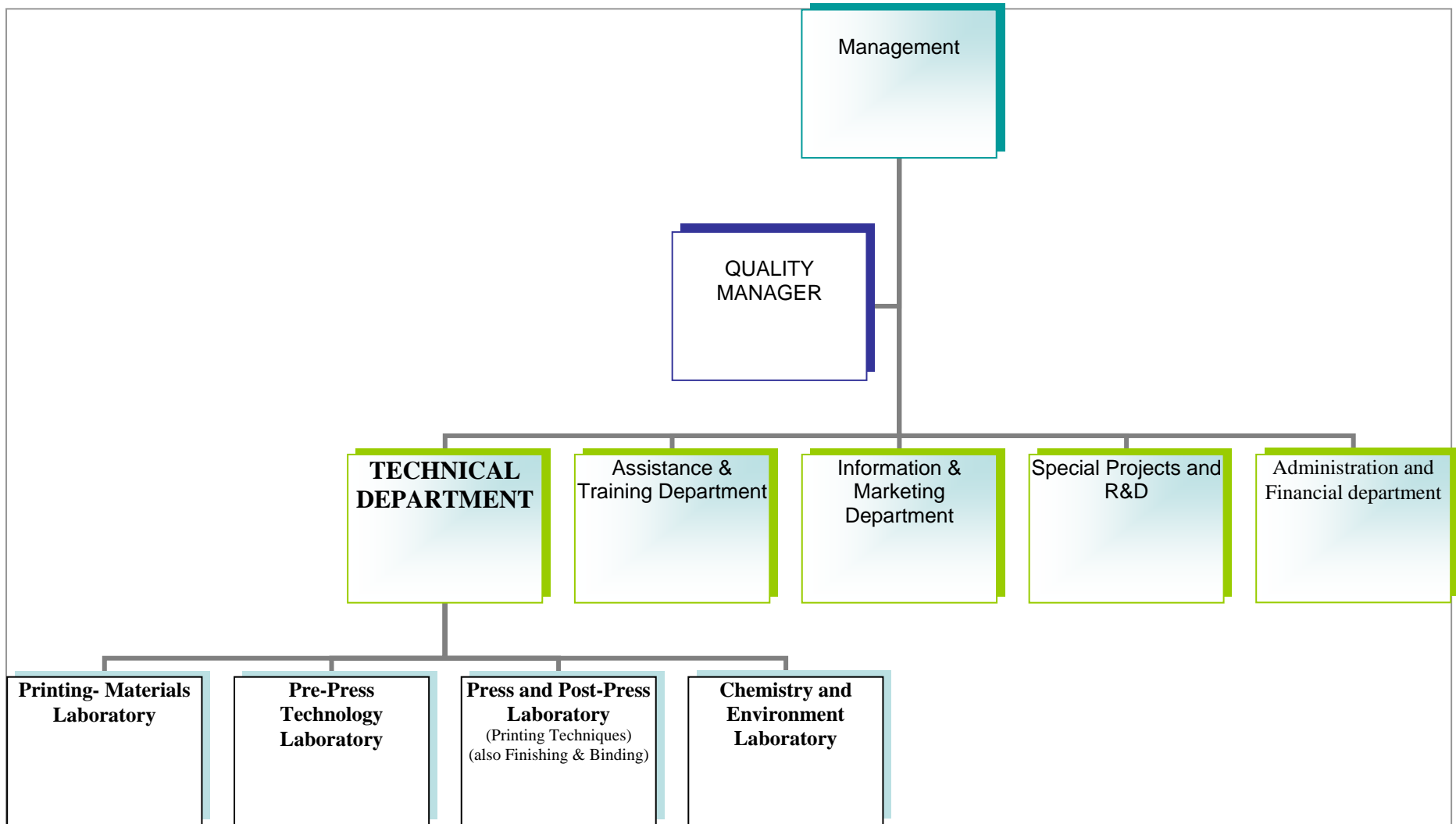
### ***Use of test equipment by industry technical personnel***

When the methods for training technical staff from industry in the use of the test equipment are well developed, it is perhaps logical to consider ways in which that training can be put to maximum use. The consultant suggests that the possibility of permitting trained technical staff from industry to occasionally have direct access to the test equipment be considered. There are many advantages to hiring time on the test equipment. As this suggestion is considered by many to be somewhat controversial it is not elaborated upon in this study.

### **1.2.3 Staff**

During the establishment year, the Centre will recruit its core staff and arrange for their training (locally and overseas). For each staff member, a personal staff development plan will be developed by the Centre HR Director in consultation with the member of staff concerned and their line manager, subject to approval by the Centre's steering committee. (Details of staff development are given elsewhere). By the end of the first year, the full complement of staff will have been appointed, including retained international consultants. Staff Job descriptions are elaborated and presented in the establishment plan, Volume I.

As indicated earlier, the Functional Organizational Chart of the Egyptian Printing Technology Centre encompasses



According to the PRTC missions and performances to be ensured by the Centre, the plan of recruitment is as follows:

## Plan of recruitment

Department	Section /Post	1 <sup>st</sup> Phase (2006-2007)	2 <sup>nd</sup> Phase (2008-2011)
<b>General Direction</b>	General Manager	1	1
	Centre Secretary	1	1
	Quality Manager	1	1
	<b>Total</b>	<b>3</b>	<b>3</b>
<b>Administrative &amp; Financial Department</b>	Administrative & Financial Manager	1	1
	Administrative Section	1	1
	Financial Section	1	1
	<b>Total</b>	<b>3</b>	<b>3</b>
<b>Technical Department (Laboratories&amp;pilot press)</b>	Technical Manager	1	1
	Materials Laboratories	1	1
	Press and Postpress	1	2
	Printing techniques (+prepress)	1	2
	Finishing and binding	1	1
	Chemical/environmental Laboratory	1	1
	<b>Total</b>	<b>6</b>	<b>8</b>
<b>Technical Assistance &amp; Training Department</b>	Assistance & training Manager	1	1
	Technical Assistance Section	1	2
	Training Section	1	2
	Design Section	1	1
	<b>Total</b>	<b>4</b>	<b>6</b>
<b>Information &amp; Marketing Department</b>	Information & Marketing Manager	1	1
	Marketing Section	1	1
	Information Section	1	1
	<b>Total</b>	<b>3</b>	<b>3</b>
<b>Research &amp; Development department</b>	Research & Development Manager	1	1
	Research & Development		1
	<b>Total</b>	<b>1</b>	<b>2</b>
<b>Total</b>		<b>20</b>	<b>25</b>

The number of the PRTC staff should be around 20 persons, it's the minimum staff required to reach the immediate PRTC objectives. As market demand for PRTC services increases, staff numbers will have to increase

It is important to mention that the Centre will have to deal with many external consultants in many cases.

### **Education and training of PRTC staff – allocation of responsibilities**

It is unfortunate that staff (in newly created laboratories) are usually much more concerned with receiving training from others, than in self-education and self-training. Training from people with experience in the subject is very helpful, but the point must be forcibly made that each staff member has a responsibility to seek out information and train him/herself in the knowledge and techniques relevant to his/her function within the centre.

Whatever their specialist role within the centre, each member of the staff needs a basic training in all aspects of printing technology.

The preparation of course material in Arabic language could be one of the responsibilities of the PRTC specialist dealing with each section. It would be very effective if the PRTC staff members were joined by specialists from the local industry who could develop the practical aspects of the course material, orientate

it to Egyptian situation, and assist in the preparation of a Arabic language training course. Specialists from industry will often assist in this way but are reluctant to write formal training documents.

In other countries it has become usual to seek the help of industry specialists when presenting training seminars and this suggested approach to basic training could be used to introduce the system. Later it may be possible to arrange regular training courses in basic printing technology in other areas of Egypt, recruiting lecturers from local industry and commerce. An established Cairo-based course would, however, be needed as a model.

#### ***Training of PRTC staff in the local industry***

There is no substitute for actual experience in the factories of local printing producers and users. If staff members could be placed for even one month in the technical or quality control sections of such factories they would benefit enormously, gaining a better understanding of existing processes and techniques. In return, the centre could offer training in the use of relevant test equipment and demonstrate the testing facilities of their laboratories so that factory management could assess the value of such testing to their operations. This applies to transport organizations, ports, warehouse, etc. the contracts made during such practical training session can be invaluable in the future.

#### ***Overseas training***

It will be essential for as many of the PRTC staff as possible to have training in overseas institutions. This is not only because they need the subject matter but because they need to see how such courses are organized.

#### ***Visiting specialists***

Experience has shown that there are considerable benefits if an experienced international consultant is assigned to printing centres.

Subjects that should be considered for training by visiting experts are:

- laboratory testing techniques (1-3 months)
- Training course preparation and management (1 month)
- Newsletter publication and management (1 month)
- Printing technology and related testing techniques (1 month)
- Graphic design techniques and prototype development (1 month)
- EC laws and regulations (1 month)
- Certification and accreditation of labs (1 month)

#### ***Designation and training of consultancy staff***

Consultancy staff are expected to work closely with personnel from the Egyptian industry and commerce on specific projects designed to raise existing levels of technology or to find a solution to defined problems. Such staff can be made part of a separate section or they can be fully integrated members of the laboratory or training personnel. They should in either case be designed as having special responsibility for working as consultants to outside organizations. The way that this will be organized must be worked out in advance.

The following table indicates the salaries charges for the Centre to ensure an efficient functioning. These are the charges for full time staff members working on a 40 hours a week basis. Hired consultants/experts will usually be on the basis of man days. The man days for temporary hiring is accounted for in the calculations of revenues and cash flow.

## Cost of Salaries

Section/Post		Qualification	Monthly cost \$	2006	2007	2008	2009	2010	2011
General Manager		Director	1250	15000	15750	16500	17250	18000	18750
Centre Secretary		Univ. graduated	450	5400	5670	5940	6210	6480	6750
Quality Manager		Engineer	550	6600	6930	7260	7590	7920	8250
Administrative & Financial Manager	Responsible	Director	900	10800	11340	11880	12420	12960	13500
Administrative Section	Responsible	Univ. graduated	450	5400	5670	5940	6210	6480	6750
Financial Section		Univ. graduated	450	5400	5670	5940	6210	6480	6750
Technical Manager	Manager	Director	900	10800	11340	11880	12420	12960	13500
Materials Laboratories	Responsible	Engineer	550	6600	6930	7260	7590	7920	8250
Press and Post press	Responsible	Technician	350	4200	4410	4620	9660	10080	10500
Printing techniques	Manager	Technician	350	4200	4410	4620	9660	10080	10500
Finishing and Binding		Engineer	550	6600	6930	7260	7590	7920	8250
Chemical/environmental Laboratory		Technician	350	4200	4410	4620	4830	5040	5250
Assistance & training Manager	Responsible	Director	900	10800	11340	11880	12420	12960	13500
Technical assistance Section	Responsible	Engineer	550	6600	6930	7260	15180	15840	16500
Training Section	Responsible	Engineer	550	6600	6930	7260	15180	15840	16500
Design Section		Engineer	550	6600	6930	7260	7590	7920	8250
Information & Marketing Manager	Responsible	Director	900	10800	11340	11880	12420	12960	13500
Marketing Section	Responsible	Univ. graduated	450	5400	5670	5940	6210	6480	6750
Information Section		Univ. graduated	450	5400	5670	5940	6210	6480	6750
Research & Development Manager	Responsible	Director	900	10800	11340	11880	12420	12960	13500
Research & Development		Engineer	550				7590	7920	8250
<b>Total \$</b>				148200	155610	156660	202860	213000	223650
<b>Total LE</b>				859560	902538	908628	1176588	1235400	1297170

Assumed Exchange rate (1\$=5.8LE)

## 2. THE MARKETING PLAN

The period leading up to the Centre launch, and the first year of operation, will be critical in generating awareness of the Centre and stimulating demand for its services. The marketing activity in this initial phase will have three principal objectives:

- 100% awareness of the Centre amongst the target audience of the Egyptian printing industry and its chain suppliers (ink manufacturers, paper manufacturers, adhesive manufacturers, environmentalists, insurance companies, financing institutions, foreign suppliers, print buyers, etc.)
- Recognition of the value proposition of the Centre by the target audience
- Development of the elements of the Centre marketing plan (see below).

### 2.1 Marketing Plan Objectives

#### **Centre Awareness**

Through marketing and publicity activities, the Centre intends that at the end of first year up to the launch, every printing company in Egypt would respond affirmatively to the question 'Do you know what the Printing Technology Centre is', and 80% would be able to identify at least one of the Centre's services.

#### **Value Proposition**

The value proposition is essentially the help the Centre can give to Egyptian printers in reaching international print markets and satisfying demands for quality, price and service. Success in these markets has the potential to have a very significant impact on the profitability of the companies concerned, and the Centre will be well positioned to channel technical support/technology transfer in a timely and efficient way through the delivery of its services.

#### **Promoting Awareness of International Standards**

A core aim of the Centre is to promote the adoption of international standards within the Egyptian printing industry. In the first year of operation, the Centre will put a high level of effort into promoting awareness of the ISO standards and of the consultancy packages which the Centre can offer to assist in implementation of these standards and in certification of successful printing companies.

### 2.2 Marketing Plan Activities

Marketing and promotion of the Centre will be conducted principally through the following activities:

- Setting up a register of consultants. This will identify the specialisation, qualification and availability of both local and international consultants, allowing the Centre to respond to a wide range of consultancy requests with the appropriate specialist consultant.
- Setting up a database of Centre members and potential clients. This will provide the information for continuing marketing and promotion activities
- Developing contacts amongst the international print buying community. This will act as a focus for the external marketing and promotion of the industry.
- Setting up a newsletter. This will be published periodically by the Centre. It will include information about the Centre, including courses and consultancy projects, as well as more general information

about standardization and international marketing opportunities. Four copies of the newsletter will be published in the first year of operation.

- Establishing a web site. The web site will provide a mechanism for communicating with both internal and external bodies. It will be a vehicle for disseminating best practices and information about Centre activities and services.
- A programme of visits to large companies to discuss the services which are needed and promote Centre membership.
- Establishing a membership base. An introductory membership subscription discount should be offered, together with a special class of 'founder member' with a premium subscription rate.
- Preparing a brochure on the Centre. This will describe the range of services offered at the Centre, and will be mailed to companies within the Egyptian printing sector for which details are held on the contact database. The brochure will be available by the Centre launch date and will be used in initial marketing and launch publicity.
- Press activities. Press releases will be prepared for the local general and specialist trade media. In addition, press events will be held to attempt to stimulate media coverage. As the Centre establishment matures, press packs will be issued to the international trade press as well as local media in advance of the launch date.

## 3. THE ACTION PLAN

### 3.1 CENTRE ACTIVITIES

During the pre-launch period and the first year of operation, the Centre will be establishing the basis for its continuing operations. It will need to market-test the planned services during this period, in order to ensure that the mix of services can meet the demand from the industry in a cost-effective and timely manner.

***The following are proposed as the core of the Centre activities for the pre-launch and Year One period:***

#### 3.1.1 Training Courses

A major task is the development of a suite of training courses on general and sectoral subjects of printing technology, which support the implementation of standards and which respond to the general needs for education and training within the industry.

At the end of the period, each course will have a specification of learning outcomes, course plan, curriculum, set of AV materials for delivery, and set of notes for participants, together with a marketing plan which defines who will benefit from the course and how they will be reached.

In the first year of operation, the following courses will be developed organised and delivered:

- Print quality assessment based on ISO 13655 and ISO 3664
- Process control to ISO 12647
- Interpreting customer files
- Soft proofing to ISO 12646

Full details of these courses do follow in this business plan but the following points need be highlighted:

- Each course will be delivered on two occasions over the first year after launch (total 8 courses).
- The first delivery of each new course will be offered at a reduced rate.
- Evaluations of these initial course deliveries will be used to provide feedback on content and method of delivery, market future deliveries, and assist the Director in planning the frequency with which courses are scheduled.

#### **The Training Courses' Details**

A Training Programme will be developed after completion of a training needs analysis for the industry. The Plan envisages that the training programme will include the following elements, which are designed to particularly support conformance with the relevant ISO standards, in addition to skills development. Not all courses will need be developed from scratch with investment. PRTC will draw on its consultant pool and associated lecturing team in addition to international consultants.

#### **Training Module 1**

##### **Print Quality Assessment Based on ISO 13655 and ISO 3664**

*Pre-requisite: none*

*Learning outcomes:*

- On completion of the programme, the trainee will be able to:
- Make and interpret measurements of printed samples
- Make and interpret measurements of transmissive and emissive surfaces including colour displays
- Identify and apply the requirements of ISO 13655 when making measurements

- Identify the reasons for using a standard viewing set-up and the requirements of conformance with ISO 3664
- Use a viewing booth and transparency illuminator to compare originals and reproductions.

*Mode of delivery:*

Two days class room

*Assessment*

The trainee will assemble a portfolio of work which demonstrates that the specified learning outcomes have been met. This will be assessed initially by the Centre trainer, and subsequently moderated by an external expert.

## **Training Module 2**

### **Process Control to ISO 12647**

*Pre-requisite:* Print Quality Assessment. Press operators will also need to be competent in setting up and operating a press

*Learning outcomes:*

- On completion of the programme, the trainee will be able to:
  - Part One (supervisors and press operators)
    - Identify the appropriate ISO 12647 aim values for a given paper type
    - Sample a press run
    - Determine whether the deviation/variation tolerances have been met for the sampled copies
  - Part two (press operators)
    - Match the ISO 12647 aim values within the permitted tolerance on a pass copy
    - Match a customer-supplied proof within the tolerances defined in ISO 12647
  - Correct mechanical, inking and other defects which might lead to a failure to match a proof or pass copy.

*Mode of delivery:*

Part one: One day class-room

Part two: Two days on press

*Assessment*

The trainee will assemble a portfolio of work which demonstrates that the specified learning outcomes have been met. This will be assessed initially by the Centre trainer, and subsequently moderated by an external expert.

## **Training Module 3**

### **Interpreting Customer Files**

*Pre-requisite:* none

*Learning outcomes:*

On completion of the programme, the trainee will be able to:

- Recognise the range of file types used to supply work
- Prepare an internal procedure document for handling customer files on the available equipment and software
- Prepare a set of guidelines for customers supplying files
- Preflight incoming files to determine problems
- Select the series of operations to be carried out on a customer file
- Check the profiles and colour spaces of a customer-supplied file against a colour management policy
- Perform corrections to customer files

- Perform colour conversions to the final output colour space
- Assess PDF files for conformance with the PDF/X specification
- RIP files to film, plate or printer

*Mode of delivery:*

Five days in class room and prepress suite

*Assessment*

The trainee will assemble a portfolio of work which demonstrates that the specified learning outcomes have been met. This will be assessed initially by the Centre trainer, and subsequently moderated by an external expert.

## **Training Module 4**

### **Soft Proofing To ISO 12646**

*Pre-requisite:* Interpreting customer files, Print quality assessment

*Learning outcomes:*

- On completion of the programme, the trainee will be able to:
- Identify the requirements of soft proofing, as specified by ISO 12646 and ISO 12647
- Describe how to evaluate a colour display for conformance with ISO 12646
- Describe how to set up a viewing environment which conforms to ISO 12646
- Profile a colour display and assess the accuracy of the profile
- Use a colour display to compare originals and reproductions

*Mode of delivery:*

One day class room

*Assessment*

The trainee will assemble a portfolio of work which demonstrates that the specified learning outcomes have been met. This will be assessed initially by the Centre trainer, and subsequently moderated by an external expert.

*Other Modules may need to be developed, Modules 5,6 & 7 give three more such modules.*

## **Training Module 5**

### **Visualizing and Communicating Color**

Color is a visual sensation. It is based on the interaction of light, objects and the human eye. Because the evaluation of color is so subjective, printers and customers often have difficulty "seeing" color from the same perspective and communicating their views to each other. In this seminar there will be demonstrations that will show how to accurately evaluate color without using instruments such as densitometers and colorimeters. It will also be learned how to communicate more clearly and knowledgeably about color with everyone who contributes to the final product.

***What will be learned?***

- How perception influences color
- How to avoid visual misinterpretations, especially when comparing color on a computer monitor, a proof and a press sheet
- The tests for normal color vision and for proper lighting and viewing conditions
- Rapid improvements to your color communication processes
- How to save time and money by decreasing color modification by trial and error
- How to avoid common pitfalls when making critical color decisions
- Tips on reproducing synthetic and spot colors using color communication systems such as Pantone, TRUMATCH and Focoltone
- How to use the paired comparison method to evaluate images

*Programme Outline:*

- Demystifying color
- Basic color theory
- Understanding color perception
- Communicating color
- Monitor color
- Subjective print quality evaluation
- Color management systems
- Evaluating color

## **Training Module 6**

### **Orientation to the Graphic Arts**

This programme is packed with information and demonstrations to give the knowledge to perform a job more effectively. A solid, comprehensive grounding in graphic arts technology will be given.

*What will be learned?*

- Major printing processes: sheetfed and web offset, digital, gravure, flexographic and screen printing methods
- Printing production workflows
- Digital prepress computer applications
- Image acquisition technology
- File creation and preparation for print
- Print finishing and management
- Trade jargon

*Programme Outline:*

- Major printing processes and markets
- Getting the job printed
- Digital prepress applications
- Introduction to printing papers and substrates
- Ink, toner and inkjet
- New media
- Design issues
- Image acquisition and reproduction
- Print finishing and management
- Prepress and printing process demonstrations
- Demonstrations of printing jobs produced on selected presses

*Who Should Attend?*

This programme is an excellent introduction for newcomers to the graphic arts industry as well as anyone who works with digital prepress houses, printers and publishers. Among those who will benefit the most are:

- Printing equipment and supply representatives
- Customer service representatives
- Graphic designers and art directors
- Photographers
- Agency production personnel
- Advertising managers
- Marketing/communications staff
- Publication supervisors
- Writers
- Print buyers

## Module 7

### Print Buying Essentials

This seminar will help make the best, most cost-effective decisions when buying print services. One will learn how to match his print buying needs with the right vendor to ensure that the finished product meets all of his expectations. Participants will see how to plan and communicate effectively with their printer to avoid rework, missed deadlines, unexpected costs and disappointing results

#### *Subjects to be learned:*

- Print technology capabilities and trends
- Printing workflow terminology and trends
- Variable data and digital printing capabilities
- Paper terminology, selection, and specification
- Print buyer's role
- Developing print specifications
- File submission specifications
- PDF file specification and preparation
- Proofing capabilities, proof checking, and proofing trends
- Print buyer's resources

#### *Programme Outline:*

##### Day One

- Print Technologies and trends
- Variable data printing
- Print production workflow
- Paper

##### Day Two

- Print Buyer's role and responsibilities
- Print Buyer/Print Sales relationship
- Print Buyer/Print Supplier relationship
- Understanding and controlling print costs
- Proofing

##### Day Three

- Developing print specifications and requests for quotes
- File submission specifications
- File readiness
- The PDF file
- Summary, discussion/Q&A session

#### *Who Should Attend?*

- Print Buyers
- Purchasing agents
- Ad agency personnel
- Corporate communications personnel
- Others responsible for purchasing printing and related services

In addition to the above, various levels modules suitable to additional levels of workmanship:

## Module 8

**Skills development course for shop floor workers** (machine operators from Prepress, Press and Post press)

### 3.1.2 Consultancy Activities/Arbitration And Trouble Shooting

The Establishment Plan refers to consultancy services in responsive, proactive and intermediate modes.

Backed by the PRTC resources, Consulting Services' capabilities cover all aspects of the printing business including:

- Business and financial management
- Sales and marketing
- Prepress
- Press room and finishing operations
- Total quality management

*For each of the potential services listed above, details are given here of the way in which Centre expertise would be delivered to the client. Depending on the particular requirement, all or some of the number of steps would be involved in the final package.*

Consultancy Service Details:

- Procurement
- Contract Bidding
- Production Planning
- Systems Integration
- Quality Assessment
- Conflict Resolution
- Implementation of Standards
- Trouble shooting services

Lead responsible in each area will be responsible for developing **proactive-mode** consultancy packages in the primary areas of Centre activity: implementation of ISO standards and improvements in business performance.

It is proposed that these services are tested with a very small number of companies at an early stage in the Centre operations. The purpose of these early implementations will be to generate a 'success story' in each area of activity, which can subsequently be used to promote the activity and services. These test implementations will also permit fine-tuning of the service delivery and help to build a base of expertise at the Centre.

**Responsive-mode** consultancy activity will consist largely of troubleshooting technical problems and undertaking tests and measurements of prints and materials.

In the first year of operation, the Centre will aim to deliver 100 days of consultancy services to clients in the Egyptian printing industry. This will comprise a mix of services in responsive mode, ISO standards implementation, and other proactive consultancy packages.

*Further details of these services are given in the Establishment Plan.*

Intermediate-mode services will evolve from the experience in delivering proactive and responsive services, and will not form a significant part of the activity in the first year.

PRTC will have to support and to coordinate the elaboration of Egyptian Standards related to printing with the Standardisation Institution.

### 3.1.3 Events

The following events are proposed for the first year of operation:

#### **Launch Event**

A grand event will be held to mark the opening of the Centre. Distinguished guests from the industry and from government will be invited, together with press and potential Centre clients. The event may take place at the centre's premises.

#### **Symposium**

An inaugural one-day symposium will be held on 'International print market opportunities'. This will focus on the characteristics of the global printing market, opportunities for members of the printing industry in Egypt to participate in the market, expectations on price, quality and service by international print buyers, and meeting these demands through the adoption of international standards.

Invited speakers will include experienced international print buyers and standardization experts. The event will aim to promote the role of the Centre in standards implementation, business process re-engineering, and disseminating information on best practices internationally. The involvement of print buyers in the symposium and launch events is considered particularly important to the success of the Centre, and the event budgets will need to include the cost of providing an attractive travel plan for international buyers.

### 3.1.4 Publications and Dissemination of Information

- Answering Service
- Library
- Newsletter

### 3.1.5 Promotion

- PRTC Brochure
- Promoting Membership
- Preparing (Founding) Excellence Award
- Experts Register
- Printing Directory

**3.1.6 Standards** (*Technical details are fully given in the Establishment Plan*).

**3.1.7 Laboratory Tests** (*Technical details are fully given in the Establishment Plan*).

## 4. THE CAPITAL INVESTMENTS

Land is estimated as follows: approx. 2000 sq.m at LE 500 per sq.m

Building is estimated as follows: cost approx. \$300000  
Both land and building make a total of approx. \$500000

Equipment. The technical equipment required to deliver the Centre service goals are described in detail in the list of equipment. The calculations in the next table takes into consideration a real life printing press and post press equipment.

Staff development. A staff development budget is calculated for overseas training of senior staff, in addition to their local training.

The summary costs are shown in the following table:

Component	Investment (\$)	Investment (LE)
Land and building	500 000	2 900000
Equipment for Measurements – specially ISO standards conformance	50 000	220320
Materials and print testing	100 000	412101
Prepress, demonstration	200 000	1 112034
Staff & Training abroad	100 000	580000
Expatriate consultants (pre-launch and launch year, 6man month)	85 000	435000
Library books and references	20 000	116000
Pre-launch staff salaries(6months)	75 000	429780
Pre-launch and launch marketing	50 000	290000
Furniture and Personal Computers and programmes	50 000	290000
Transport means	100 000	580000
Contingency	170 000	2 181565
<b>Total without press &amp; post press \$</b>	<b>1500 000</b>	<b>8 700 000</b>
Press & post press(3 000 000+10% contingency 300 000)	3 300 000	19 140 000
<b>Total with press &amp; post press \$</b>	<b>4 800 000</b>	<b>27 840 000</b>

## 5. THE FINANCIAL PLAN/ Feasibility Study

### 5.1 Financial Objectives

At the end of the first year, the Centre will aim to

- generate a level of activity in which the revenue from all sources matches the operating costs of the Centre
- demonstrate a rising level of activity and a sound financial projection for continuing operation

The feasibility of the PRTC is evaluated here by comparing the continuing operating costs with the projected revenue.

### 5.2 Demand for PRTC services

The printing industry and its markets are in a period of significant transition. There is an increasing awareness by print buyers across the world of the opportunities for sourcing print contracts internationally. Established international print exporting countries such as Hong Kong and Singapore are being joined by emerging industries in countries outside the G8 nations and the EU.

Alongside this very significant export opportunity, local markets are affected by the increased competitiveness, quality and service levels of modern printing and prepress technology.

Printing companies which do not engage with modern production methods will not only be unable to sustain a level of export activity, but also face the loss of their existing markets to external competition.

These factors make the establishment of the PRTC both timely and necessary.

### 5.3 The Projected Income and Expenditure

A summary of the estimated annual income and expenditure are provided. It can be seen that a loss is projected for the first year of operation post launch, but that the Centre is expected to move into operating profit during next years.

The benefits to the printing industry in improving the ability to export to international markets and enhancing business process efficiency in the local market is expected to considerably outweigh the cost of establishing and operating the Centre.

***Assumptions made in preparing this forecast are given hereafter:***

## 5.3.1 Revenue Assumptions

Revenue projections in this business plan are generally conservative. The projected revenue for each area of activity is based on the following assumptions:

### Membership

It is assumed that there will be 100 full members of the Centre, 200 from second year after launch and that the median membership annual subscription is priced at \$200.

### Training

The projected pricing for training courses income for PRTC is \$50 per day per trainee. It is anticipated that a total of 100 training days will be delivered at the Centre and at member companies, with an average of 12 full-price participants at each.

### External Training Income

A projected subsidy of \$50 per trainee per training day is anticipated. Other sources of income will also be explored.

### Consultancy, Arbitration and trouble shooting

The projected pricing for consultancy is \$200 per day. It is anticipated that a total of 200 consultancy days will be delivered at the Centre and at member companies, making a total revenue of \$40000. In addition, it is anticipated that donor subsidies for business improvement, with a total value of \$100000, is obtained against specific projects.

### Events

Two major events per year are projected, with an average of 200 paying attendees at each. These will be hosted at an external location, and the projected surplus for each event is \$4000.

### Measurements/Testing

700 measurements were used for estimating purposes at a \$50 per test which is a very conservative estimation.

### Press and Post-press Operating Running Cost:

- based on 100 training days
- daily expense incl. salaries \$550
- Projected machine training gross revenue (daily) \$1000,
- Net daily income \$450.

### Other income

Revenue from other sources such as the sale of QC products is projected to be \$10000.

### Incomes sources not Considered in the calculations:

- From the Newsletter
- From the Excellence competition
- From long term contracting to do the government testing (Ministry of health and Export Import authority)

## Summary of Annual Revenues:

Item	Revenue \$	Revenue LE
<b>Membership</b> 100 member \$200 annual subscription	20000	116000
<b>Training</b> 100 Training days Daily revenue 12 x \$50	60000	348000
<b>Donor-funded training subsidy</b> 100 Training days Daily revenue 12 x \$50	60000	348000
<b>Consultancy</b> 200 Chargeable days daily Fee \$200	40000	232000
<b>Sector-funded projects</b> 500 Chargeable days Fee \$200	100 000	580 000
<b>Machine</b> Evaluations 100 training days daily net \$450	45000	261000
<b>Testing</b> 700 test average fee of \$50	35000	203000
<b>Symposium (No.2)</b> attendees 200 Gross profit each \$50	20000	116000
<b>Newsletter</b> (not counted in profit generation)		
<b>Other income</b>		
<b>Sales of products, Miscellaneous services,</b>	10000	58000
<b>Annual Total</b>	<b>390000</b>	<b>2 262000</b>

### 5.3.2 Operating Cost Assumptions

The projected cost for each area of activity is based on the following assumptions:

#### Premises' Depreciation

The estimated annual cost of a full-service premises is shown. The Ministry has undertaken to provide the land and building free of charge initially. However, the estimated equivalent cost is shown in this business plan in order to demonstrate the long-term feasibility and potential return to stake-holders.

Depreciation costs are considered in the cash flow, over 25 years

Services and utilities required by the Centre are described in more detail in the Establishment Plan.

#### Equipment depreciation

Depreciation of the equipment was calculated over 15 years.

#### Staff Salaries

Monthly salaries of \$1200, 1000, 500 and 300 are projected for the Centre Director, specialists, facility managers and administrative staff respectively. In phase one the total number of staff is 20, reaching 25 in phase two.

### Maintenance and spare parts

An annual budget is shown for maintenance and calibration of technical equipment. Amounts are included for equipment replacement from Year 6 of operation.

### Consumables

The cost of annual office and laboratory consumable materials is estimated.

### Marketing and promotion

The continuing marketing budget, including the production of newsletter and press materials, is shown. The estimated cost of pre-launch promotional activities, including the production of a brochure, press materials and events associated with the centre launch, are also given.

### Depreciation

Depreciation of all items in the capital costs list is considered (approx taken as \$100000, except the press and post press). Buildings are over 25 years while all the rest are over 15 years, for approximation and simplification.

## CASH FLOW FORECAST

A five-year cash flow forecast is shown in the following table:

Cash Flow Forecast Table (US \$)

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Operating costs</b>					
Staff	148000	156 000	157 000	203 000	213 000
Maintenance	10000	10500	11000	11500	12000
Consumables	5000	5250	5512	5788	6077
Marketing and promotion	50000	52500	55125	57881	60775
Utilities	6000	6300	6615	6945	7293
Depreciation: Building, Measurement equipment & all other capital items, except press/post press	100000	100000	100000	100000	100000
Staff training abroad		10000	20000	20000	20000
Consultants from abroad		36000	36000	36000	36000
Contingency	7000	8000	9000	10000	10000
<b>Total</b>	<b>350000</b>	<b>384160</b>	<b>399912</b>	<b>447974</b>	<b>465145</b>
<b>Revenues(net income)</b>					
Membership	20000	20000	22000	24200	26600
Training	60000	80000	80000	84000	92000
Donor funded training	50000	60000	60000	60000	60000
Sector/collective funded projects	60000	100000	105000	110000	115000
Consultancy	40000	60000	72000	80000	80000
Events	20000	20000	25000	27500	30000
Measurements and machine testing	60000	80000	90000	100000	100000
Other(selling products)	10000	10000	12000	15000	16500
<b>Total</b>	<b>320000</b>	<b>450000</b>	<b>486000</b>	<b>520700</b>	<b>540100</b>
Operating profit/loss	-30000	65840	86088	72726	74955

# 6. THE IMPLEMENTATION PLAN



# 7. OTHER PRACTICAL ISSUES ON THE FIRST YEAR BUSINESS PLAN

## *Issues on the first year programme of activities for PRTC*

### 1. **Defining scope of activities**

There is a need to define very early the scope of the work to be carried out in the laboratories. This will be decided in conjunction with the relationship of PRTC to other institutions, dealt with in a later paragraph, but there are certain limits that should be adopted from the beginning. The laboratories should be concerned with the physical (and some chemical) characteristics of printing materials after they have passed through the normal conversion processes.

They should not be concerned with the basic raw materials i.e. making of paper or plastics, because this calls for quite different test equipment, test procedures and experience. In other words, the laboratories are concerned with paper, board and corrugated board but not paper pulp and the processes for making paper and board. The surface characteristics of the plastic films, blown and injection moulded containers are of immense importance but the structure of plastics materials and their behaviour during extrusion and other conversion processes is not a field that PRTC will be equipped for or competent to enter. The same applies to glass and tinplate. This where cooperation and networking with other TCs like the plastics TC comes in, defining the spheres of operation which are not appropriate can be as important to the success of the centre as programming desirable activities, and should be seen as an ongoing process.

### 2. **Reference books and analysis of existing printing**

When a laboratory is newly created, one of the biggest problems is that they have no idea what constitutes a "normal" test result, how wide a range of test results is usual for a given material, or package. Consequently, their ability to help industry by means of their testing and advisory services is very restricted. The laboratory staff has to develop speed, accuracy and a full understanding of each written test procedure and this can only be done by repeated practice on materials and prints with known characteristics.

An effective way on developing confidence and building up essential background data is to establish, for each piece of test equipment, a data book, in which all the test data obtained from tests carried out on that equipment are collected. Periodic analysis of the results, relating them to the type and condition of the material (or package) involved, not only builds the knowledge of the operative and supervisory staff, but provides material essential for training courses. The results of course participants' testing activities can add a lot of data to this book.

Attention is drawn here to the need for analyzing and recording the characteristics of those materials currently in use in Egypt. Comparison of these results with those from materials and packs used elsewhere in the world, especially for products being imported into Egypt, is also considered extremely useful as background information for development. The databook concept is a practical way of meeting this requirement in an effective way, ensuring that the data is available to anyone who requires it.

### 3. **Sample control**

As the consultancy and testing services of the centre become operational, the number of samples of material being processed mounts very rapidly. The methods for registering, identifying, locating and storing materials and packages before, during and after use have to be clearly worked out and established.

The techniques associated with reporting test results have to be established and the legal implications concerning the limits of responsibility for those results must be decided upon at an early stage.

#### **4. Costing of services**

Policy decisions have to be made very early on about charges for the centre's services. This is a most difficult operation. It is reasonable that the testing and consultancy services contribute to the overhead costs of the centre, but it is equally reasonable that industry is not going to pay for work that takes a long time to complete and is carried out by individuals who are unskilled in their business. A compromise has to be reached. It is suggested that a realistic scale of charges be established as early possible but that discounts are applied for the first year or so of operation. For example, for the first 6 months after a piece of test equipment is brought into full use, no charges are made for testing on that equipment for the next 6 months a 50 % discount could be applied. The charges made for services will depend on the degree of financial support available to the centre but if concessions are not made in the early days, the centre will find it very difficult, if not impossible, to get these services off the ground.

Printers and users could well be interested in cooperating with the centre in introducing quality measurement activities to their factories, provided that the cost is tolerable. There is a real need for this service since they are often more or more being asked to verify that their printing conforms to quoted specifications. Disputes as to whether these requirements have been met are becoming more frequent.

This activity would involve both the consultancy and testing services of the centre. Once the service has been established for a number of client companies (and the skill of the centre staff raised to an adequate level) the value of the service can be truly assessed by existing and potential users.

#### **5. Research and development**

There is a vast amount of information available on printing technology, far more than the staff of the newly created packaging centre could absorb even after several years of diligent study in their specialist fields.

Applying the abundant information that is already available to local problems, and modifying it as necessary to suit the Egyptian environment should receive the total attention of all the technical staff for some years to come, until a firm foundation exists on which research programmes can be based.

The development work of PRTC can be expected to emerge from the activities of the consultancy service.

#### **6. Analysis of present export printing**

The 10 most important export products from Egypt should be selected for intensive study as to the nature and the effectiveness of the printing at present in use. This is partly to increase the knowledge of the consultancy staff and their ability to help in similar export activities, and partly to locate areas in need of improvement.

#### **7. Specifications**

The consultancy service will be involved with assisting local industry in the preparation of buying, selling and manufacturing specifications. Those members of the staff who will be responsible for this service must first become very familiar with how it is done. Fortunately there is a lot of information in the literature on how to write specifications, but this has to be located, obtained and digested.

A great difficulty in writing specifications is the choice of sensible tolerances for the properties being specified. Tolerances which are too tight can inflate costs without bringing any noticeable benefits, therefore close attention to the databook procedures will be essential.

#### **8. Costing techniques**

The consultancy service must learn to cost the whole printing and distribution process, not just the change in costs involved in buying one book or package rather than another. This is something that companies are rarely able to do and the scope for assistance in this field is considerable.

#### **9. Environmental aspects**

More and more legislation will be directed to protecting the environment and the implications of a lot of the decisions made at government and EU level can be expected to have substantial impact on the printing industry. The PRTC must be able to provide advice on the present position in EU & USA and on the

implications related legislation. The question of water based materials, safety measures in contact with food, traceability and recyclability must be given constant attention by the consultancy service.

#### **10. *Printing directory***

Giving advice on sources of supply for printing materials, machines and accessories is a normal function for a central printing centre. Since a comprehensive Egyptian printing directory does not exist, preparing one will be a worthwhile activity since the process of preparation helps greatly in assessing the existing printing supply and demand situation. The visits and talks necessary for this task of compilation provide an excellent opportunity to advice the industry on the services available from the PRTC. Information on the availability of printing supplies in other European or neighbouring countries can be helpful to the Egyptian industry too.

#### **11. *Bar coding***

Bar coding is well established, but more and more manufacturers and converters will have to offer this service and will need help in doing so.

#### **12. *Printing machinery***

This is a vast field and the variety of machinery available in Europe and far east is enormous. The information and experience needed to advice potential users sensibly on equipment selection are so great that one would be probably better to be selective (machine management and maintenance is example).

A useful contribution could be made, however, on the interaction of printing materials with the various types of printing machinery, as this is a common cause of industrial problems and one in which the centre should be well placed to assist.

#### **13. *graphic design***

In due course, assisting industry with problems that involve graphic design aspects could become a most useful facet of the centre's work. Assisting with graphic design problems in a country with many sophisticated designers, must be regarded as much more complex because of the clients' strong desire for confidentiality in such matters. Information concerning the legal requirements for graphic design for the countries of the EU would seem to be useful.

Running in courses in graphic design problems would be very useful function for PRTC; they would emphasize the vital role of good graphics in export marketing.

#### **14. *Support for standards preparation***

The Egyptian standards authority will expect active participation from the PRTC when printing standards are being developed. They will look for assistance in resolving technical differences between committee members concerning practices in other countries and as regards technical evaluation of materials and prints.

#### **15. *Documentation***

A collection of standard text books and similar publications will be essential. Lists of suitable literature will be required.

Important printing periodicals will be made available, consideration should be given to the need for selected articles to be translated into Arabic for dissemination.

#### **16. *Database searches***

A means of searching international database should be developed within PRTC, both for its own use and as a service to industry.

#### **17. *Statistical data***

Hopefully statistics relevant to the importation of printing materials and prints are kept separately from the general statistics of the appropriate organizations. Statistics on local production would be useful too. PRTC might look at this, as such information would be important when advising the government on the industry's development needs.

**18. Newsletter**

It is usual for centres to prepare and distribute a regular newsletter. Publication of a printing magazine could be considered, although the effort and cost involved is usually much higher than expected and there is some doubt if it should be attempted in the first year of the PRTC's existence. It might be also useful to arrange for articles on printing/packaging to be prepared by the PRTC for publication in related technical journals.

**19. Visual aids**

A priority activity of the PRTC is training and education in printing technology. A considerable number of training courses and seminars will have to be built up, often in a form that can be used in other parts of the country. Good training courses to use visual aids photographs, including slides, overhead projection sheets, power point presentations and video films. The latter are very important in self-training activities, especially on laboratory testing procedures.

It is recommended that PRTC create a visual aids section from the beginning, so that this important activity can be put on a professional level.

# 8. TOR FOR EQUIPMENT ACQUISITION

*The details and specifications required for requisitions and eventual procurement are as follows:*

## Testing Equipment and Instruments

Test Equipment	Description	Manufacturer and model	Price	Contact /Sales Details
Spectrophotometer	Hand held, 0/45, Reflection	GretagMacbeth Spectrolino	\$3780	<b>GretagMacbeth ( UK ) Ltd</b> Greenway House/Abbots Park Preston Brook, Cheshire, UK,WA7 3GH Tel : +44 1928 280 050 Fax: +44 1928 280 080 Email: via website Homepage: <a href="http://www.gretagmacbeth.com">www.gretagmacbeth.com</a>
		OR		
		X-rite DTP 22 Digital Swatchbook	\$1950	<b>X-Rite Ltd</b> Acumen Centre First Avenue Poynton, Cheshire, UK, SK12 1FJ Tel: +44 1625 871100 Fax: + 44 1625 871444 Email: via website Homepage: <a href="http://www.xrite.com">www.xrite.com</a>
		OR		
		Datacolor Microflash 45	\$6500	<b>Datacolor</b> 6 St. Georges Court,Dairy House Lane Broadheath, Altrincham Cheshire, UK WA14 5UA Tel : +44 1619 299441 Fax: +44 1619 230 266 Email: <a href="mailto:ecmarketing@datacolor.com">ecmarketing@datacolor.com</a> Homepage: <a href="http://www.datacolor.com">www.datacolor.com</a>

	Hand held, d/0°, integrating sphere, Reflection	X-rite SP64  OR  Konica Minolta CM-2600d	\$8750   \$6940	<b>X-Rite Ltd</b> Details as previous  <b>Konica Minolta Instrument Systems</b> Konica Minolta Photo Imaging(UK)Ltd Instrument Systems Division 7 Tanners Drive, Blakelands, MK14 5BU UK. Tel: +44 1908 283939 Fax: +44 1908 618662 Email: <a href="mailto:isd_info@ph.konicaminolta.co.uk">isd_info@ph.konicaminolta.co.uk</a> Homepage: <a href="http://www.konicaminolta.co.uk">www.konicaminolta.co.uk</a>
Glossmeter	75 °, hand held	Rhopoint Novo Gloss NG75  OR  BYK- Gardner Micro Gloss 75 degrees  OR  Beta Gloss meter	\$1400   \$2400   \$1451	<b>Rhopoint</b> WESTLAIRDS, Patixbourne, The Green, Datchet, Slough, SL3 9JH, UK Tel: +44 1753 545726 Fax: +44 1753 549933 Email: <a href="mailto:Sales@westlairds.co.uk">Sales@westlairds.co.uk</a> Homepage: <a href="http://www.westlairds.co.uk">www.westlairds.co.uk</a>  <b>BYK-Gardner</b> SHEEN INSTRUMENTS LTD Unit 4 St.George's Industrial Estate Richmond Road, Kingston Upon Thames Surrey, KT2 5BQ, UK Tel: + 44 208 541 4333 Fax: +44 20 8549 3374 Contact: Mr. Derek Gerk Email: <a href="mailto:info@sheeninstruments.com">info@sheeninstruments.com</a>  <b>Beta Industries</b> Contact: Stu Serchuk Email: <a href="mailto:Stuart@betascreen.com">Stuart@betascreen.com</a> Homepage: <a href="http://www.betascreen.com">www.betascreen.com</a>
Spectroradiometer	1° measuring angle	Minolta CS-1000A	\$23380	<b>Konica Minolta Instrument Systems</b> Details as previous

	<p>Portable, 0.9nm wavelength resolution</p> <p>1.8° measuring angle, portable, 1nm wavelength resolution</p> <p>1 ° measuring angle, portable, wavelength resolution &lt;3.5nm</p>	<p>OR</p> <p>Jeti      Specbos 1201</p> <p>OR</p> <p>PhotoResearch PR 650</p>	<p>\$5386</p> <p>\$15400</p>	<p>Jeti Technische Instrument GmbH Wildenbruchstrasse 15 D -07745 Jena, Germany Tel : ++49 36411 675450 Fax: ++ 49 3641 675455 Email: <a href="mailto:sales@jeti.com">sales@jeti.com</a> Home page: <a href="http://www.jeti.com">www.jeti.com</a></p> <p>Photo Research Inc 9731 Topanga Canyon place Chatsworth, CA 91311-4135, USA Tel: ++ 01 818 341 5151 Fax: ++ 01 818 341 7070 Email : via website Homepage: <a href="http://www.photoresearch.com">www.photoresearch.com</a></p>
Viewing booth	D50      Colour Control Cabinet	<p>Verivide 120</p> <p>OR</p> <p>GTI CVX-1</p> <p>OR</p>	<p>\$1169</p> <p>\$2725</p>	<p><b>Verivide</b> Quartz Close, Warrens Business Park, Enderby, Leicester, LE19 4SG, UK Tel :++44 116 284 7790 Fax:++44 116 284 7799 Email: via website Homepage: <a href="http://www.verivide.com">www.verivide.com</a></p> <p><b>GTI Graphic Technology Inc</b> Graphic Technology (UK)Ltd Unit 201/202 Batley Enterprise Centre 513 Bradford Road, Batley, W.Yorkshire, UK Tel: ++ 44 1924 473666 Fax: ++44 1924 473999 Contact: Paul Goff Email: <a href="mailto:graphitec@lineone.net">graphitec@lineone.net</a></p>
	D50      plus      4	GretagMacbeth	\$4575	<b>GretagMacbeth ( UK ) Ltd</b>

	additional light sources viewing booth	Spectralight III		Details as previous
Transparency Illuminator	D50 Transparency viewer	Verivide 1812	\$329	<b>Verivide</b> Details as previous
		GTI GLX-16LG	\$571	<b>GTI Graphic Technology Inc</b> Details as previous
Magnifier	8 X	Beta LT-5X Linen tester	\$21	Beta Industries Details as previous
	Desk loupe with 8X magnification lens 24mm,	OR Gepe 8X Magnifier Loupe	\$7	
Microscope	Hand held	Beta Color Viewer	\$565	Beta Industries Details as previous
Microline target		UGRA Plate Control Target	\$133	Beta Industries Details as previous
		OR GATF Plate Control Target	\$112	Beta Industries Details as previous
Paper Balance		Digital Paper Scale , DPS Technologies	\$665	DPS Technologies Ltd DPS House, Unit 5 Tideswell Business Park, Off Meveril Road, Tideswell , Derbyshire, SK17 8NY, UK Tel: ++44 1298 871185 Fax: ++441298 871174 Email: <a href="mailto:sales@dpstechnologies.com">sales@dpstechnologies.com</a> Homepage: <a href="http://www.dpstechnologies.com">www.dpstechnologies.com</a>
		OR Schmidt AR- 300 paper balance	\$519	Hans Schmidt & Co GMBH Schichtstrasse 16 D- 84478 Waldkraiburg Germany Tel: ++49 8638 9410-0 Fax: ++49 86368 4825
		OR		

		Beta balance	\$152	Email: via website Homepage: <a href="http://www.tensionmeter.de">www.tensionmeter.de</a>  Beta Industries Details as previous
Dead weight micrometer		Beta paper micrometer	\$128	Beta Industries Details as previous
Smoothness tester	Fully automatic instrument With electronically Controlled pressure	M.C.TEC Bendsten roughness and Permeance tester - air	\$12400	M.C.Tec BV De Bloemendaal 2 5221 EC's-Hertogenbosch Nederland Tel: ++31 73 6330733 Fax : ++31 73 6330085 Email :info@mctec.nl Homepage :www.mctec.nl
		OR  M.C.TEC Bekk smoothness tester	\$13400	M.C.Tec BV Details as previous
Porosity tester		M.C.TEC Bendsten roughness and Permeance tester - air	\$7900	M.C.Tec BV Details as previous
Absorbency tester		M.C.TEC – Cobb tester	\$1355	M.C.Tec BV Details as previous
Tear resistance tester		M.C.TEC – Elmendorf tear Tester digital	\$10700	M.C.Tec BV Details as previous
Static friction tester	Measures static and kinetic COF in one operation  Sliding block	TMI Monitor/slip & friction	\$2,397	TMI Group Messmer Instruments Ltd Unit F1, Imperial Business Estate, Westmill, Gravesend, Kent DA11 0DL, UK Tel:+44 1474 566488 Fax:++44 1474 560310
			\$426	

	for friction tester			Email: <a href="mailto:messmer@testingmachines.com">messmer@testingmachines.com</a> Homepage: <a href="http://www.testingmachines.com">www.testingmachines.com</a>
Printability tester	Pick, print penetration, paper Roughness & toner Adhesion	IGT Global Standard tester 1	\$43,643	IGT Testing Systems Tendring Pacific Norfolk House, Great Chesterford Court, Great Chesterford, Essex CB10 1PF, UK Tel : +44 870 240 1886 Fax: +44 870 240 1887 Email: <a href="mailto:sales@tendringpacific.com">sales@tendringpacific.com</a> Homepage: <a href="http://www.tendringpacific.com">www.tendringpacific.com</a>
Rub tester	3 speed, measures scuff and rub resistance  Heated test weights, 2psi and 4psi  Replacement pad set	TMI Ink rub tester	\$3,422  \$1,629  \$70	TMI Group Details as previous
Opacimeter	Opacity, brightness & substrate colour	TMI brightness & colour meter	\$3,688	TMI Group Details as previous

Prepress	Description	Manufacturer & Model	Price	Contact/sales details
12 Networked computer stations	Intel Pentium 4 with HT technology OS windows XP	Dell Precision™ 380  OR IBM Intellistation M Pro  OR HP X4300	\$783 (each)  \$1150 (each)  \$660 (each)	Homepage: <a href="http://www.dell.com">www.dell.com</a> Buy online facility  Homepage: <a href="http://www.ibm.com">www.ibm.com</a> Buy on line facility  Homepage: <a href="http://www.hp.com">www.hp.com</a> Buy online facility

	Fast Ethernet connectivity with 48 10/100 ethernet ports And secured network facilities	Dell Power Connect™ 3448	\$504	Homepage: <a href="http://www.dell.com">www.dell.com</a> Buy online facility
	OR			
12 Networked computer stations	Apple Mac G5 OSX And secured network facilities	2.0GHz PowerPC G5	\$1730 (each)	Apple 235 Regent Street London W1B 2ET 020 7153 9000

LCD displays	12 x 19" LCD displays	<b>NEC 19" 1970GX LCD</b>	\$362 (each)	Jigsaw Systems The Old Mill High Church Street Nottingham NG7 7JA Fax Number 0870 730 6850 (UK only) +44 115 916 5550 (International)
	4 x 19" calibrator LCD displays	NEC SpectraView 19" LCD displays	\$800 (each)	
2 Scanners	Flatbed XY scanner with twin lens Super CCD technology	Fuji Finescan 2750	\$16000	Fuji Photo Film(UK)ltd Graphic Systems Imaging Centre Unit 15, St. Martins Way St, Martins Business Centre Bedford, MK42 0LF, UK Tel :++44 1234 245245 Fax: ++44 1234 245349 Email : <a href="mailto:marketing.fgs@fuji.co.uk">marketing.fgs@fuji.co.uk</a> Homepage: <a href="http://www.fujifilm.co.uk">www.fujifilm.co.uk</a>
	OR			
	High end vertical drum scanner 12000 dpi optical quality	ICG 380 drum scanner	\$41300	Itek Colour Graphic Ltd (ICG) The Old Drawing Office 50 High Street Kingswood Bristol, BS15 4AJ , UK Tel : ++ 117 980 5978

				Fax: ++ 117 960 3282 Email: via website Homepage: <a href="http://www.igc.ltd.uk">www.igc.ltd.uk</a>
Proofing system		Epson Stylus Pro 10600	\$10000	Home page: <a href="http://www.epson.co.uk">www.epson.co.uk</a> Official Dealer Microtech Computer Servs (Lond) Ltd. Southbank Technopark 90 London Road SE1 6LN UK Ph. 020 79228836
		OR		
		Agfa Sherpa	\$20750	
		OR		Home page: <a href="http://www.agfa.co.uk">www.agfa.co.uk</a> Agfa-Gevaert Ltd., Corporate Communications 27 Great West Road, Brentford, Middlesex TW8 9AX Ph. 020 8231 4983 Email: <a href="mailto:gssales.gb@agfa.com">gssales.gb@agfa.com</a>
		Kodak Approval	\$70000	Home page: <a href="http://www.kodak.com">www.kodak.com</a> Croxley Business Park, Sherbourne House, Hatters Lane, Watford, Herts WD18 8WU Tel: +44.1923.470.500 Email: <a href="mailto:infoemea@creo.com">infoemea@creo.com</a>
Workflow Software		KPG /Creo Prinerg	\$25000	Home page: <a href="http://www.kodak.com">www.kodak.com</a> <b>Details as previous</b>
Platesetter		Agfa OR Creo OR Kodak	\$50000	Agfa, Creo, Kodak Details as previous
Plate processor			\$30000	Agfa, Creo, Kodak Details as previous
Small viewing booth	Verivide	DTP	\$1500	Home page: <a href="http://www.verivide.com">www.verivide.com</a> Quartz Close, Warren Business Park, Enderby, Leicester, LE19 4SG Ph, 0116 284 7790 Email: <a href="mailto:enquiries@verivide.com">enquiries@verivide.com</a>

Test Equipment	Description	Manufacturer and model	Price	Contact /Sales Details
Monitor calibration Calibration targets	Spectrophotometer BCRA tiles set complete	Eye-one Display Eye-one Design	\$300 \$1200 \$1800	Bodoni Systems LTD (Certified Partner) Harefield UB9 6NZ Middlesex UK  Phone: 01895 825776 Fax: 01895 825994 Homepage: <a href="http://www.bodoni.co.uk">http://www.bodoni.co.uk</a>
Profile Generation	Creating ICC profiles	Gretag Macbeth ProfileMaker5.5 Publish bundle with Spectroscan and Spectrolino	\$8400	Bodoni Systems LTD (Certified Partner) Harefield UB9 6NZ Middlesex UK  Phone: 01895 825776 Fax: 01895 825994 Homepage: <a href="http://www.bodoni.co.uk">http://www.bodoni.co.uk</a>
Formula guides	PANTONE	PANTONE Essentials bundle	\$287	Bodoni Systems, UK Salamander Quay West Park Lane Harefield Middx UB9 6NZ tel: 01895 825776 fax: 01895 825994 email: <a href="mailto:info@bodoni.co.uk">info@bodoni.co.uk</a>

## TOR Equipment...contd

<b>Pressroom</b>	<b>Example supplier</b>
Press	72cm Heidelberg 72FP
CTP unit	Agfa
Plate storage	
Paper storage	Supralift
Transport (pallet truck)	
Fork lift	Supralift
Ink storage and benching	
Hazardous solvent storage	
<b>Postpress</b>	
Guillotine	Polar
Folder	Stahl
Saddle- stitcher	Muller
Book binder	Muller

### **N.B**

- *In the calculation of the Capital Cost, an additional \$170 000 has been added as contingency.*
- *It is intended that most of this amount goes to cover bits and pieces of tools, kits and measuring instruments that need to be added at the final tendering of the equipment list, Or pay for changing costs.*
- *Another \$300 000 are taken into consideration as contingency for the Press and Post press.*

# 9- TOR COMPUTERS

## Egyptian Technology Transfer Network- The Logical Computing Architecture

Following is the diagram representing a high level logical architecture of the Egyptian TC network system, with special emphasis on the cases of PATC and PRTC. This architecture is highly consistent with that offered by the Egyptian e-government.

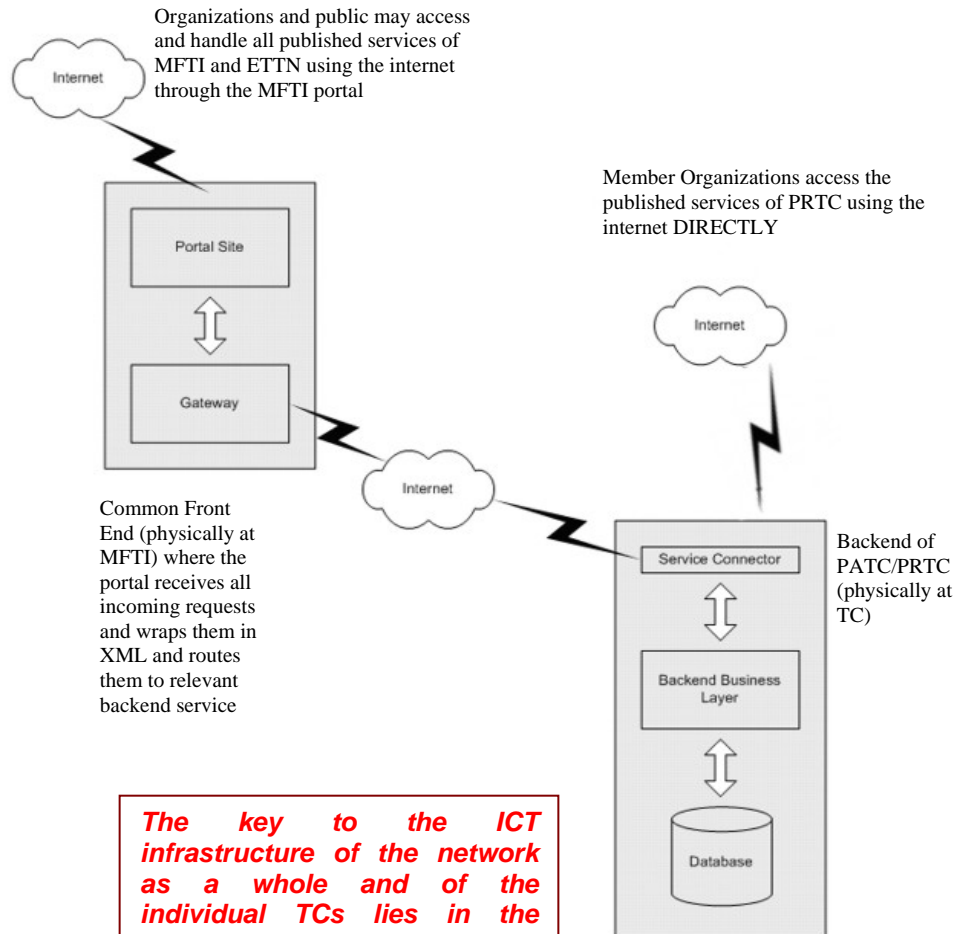
### Front-end:

This is the web interface for the various services offered by MFTI. The portal transforms all citizen inputs to XML requests that are sent to the Gateway which receives all XML requests from the different sections within the portal and sends it to the appropriate back-end of TC, relevant to this request.

### Service Back-end:

Each TC system offers the services available from it directly do its members or through the MFTI front end to general public.

*Service Connector and Back-end Business Layer:* This is the interface and application of the particular services offered by the PATC/PRTC.



**The key to the ICT infrastructure of the network as a whole and of the individual TCs lies in the understanding of need for a coherent information environment, and a service-oriented architecture.**

### A Database (E.G. SQL Server 2005- standard Or Oracle)

- For members, data archiving and on-line information services
- Must be highly available and largely self-managing
- Supports multiple data access protocols (Egypt, EU, other)
- Be highly secure
- Be easy to develop applications for, provided necessary training is given to TC staff
- Supports XML and complex data formats

**An application and web-server:**

- Suitable for more than 50 concurrent users.
- Intel Xeon processor at 3GHz/2MB cache, 800 MHz FSB
- 2GB DDR2 400MHz Memory
- RAID (80GB)
- CD/DVD RW
- Dual Onboard NICS
- Microsoft Windows Server 2003 Standard Edition

**Workstation Computers:**

- Processor: Intel® Pentium® 4 HT & XD Security up to 2MB L2 cache or Intel Celeron® D Processor
- Windows® XP Professional Operating System
- Memory 512MB (Up to 2GB) of 533MHz Dual Channel Shared DDR2 SDRAM
- Video Intel Graphics Media Accelerator 950
- Networking Integrated (LAN on Motherboard)

# Appendix I

A table summarizing the tests and associated equipment and standards:

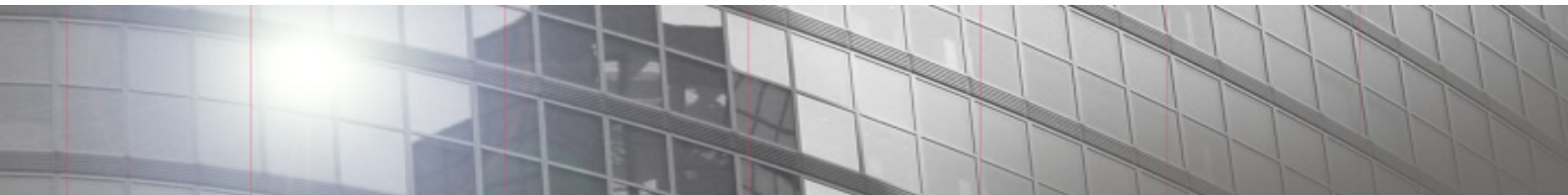
<b>INK Testing:</b>	
<b>Optical Properties:</b>	<b>Instruments &amp; Standards used</b>
1- Colour	Densitometer / Spectrophotometer / Colorimeter (ASTM D-1729/2244)
2- Colour strength	Spectrophotometer (ASTM D-387)
3- Opacity	Visual (ASTM D-2085)
4- Gloss	Glossmeter (ASTM D-523 / E-167)
<b>Working Properties:</b>	
1- Drying	NPIRI drying time recorder/IGT drying time recorder/ PIRA ink drying tester (ASTM D-1640)
2- Fineness of grind	Fineness of grind gauge (ASTM D-1316)
3- Wet ink film thickness	Ink film thickness gauge (ASTM D-1212)
4- Tack	Inkometer / Tack-o-Scope
5- Viscosity	Viscometers (Cup - Rod - Bar - Rotational - Vibrating-reed) (ASTM D-1200)
6- Flow	Flow plate
7- Length	Manual
8- Fly (Mist)	Inkometer
9- Emulsification	Duke tester
10- Pigment bleeding in dampening solutions	Manual (ASTM D-279)
11- Scumming	Printing press
12- Density & Specific gravity	Standard weight-per-gallon cups (ASTM D-1217/1480/1475/153)
13- Flash point	Cup (ASTM D-1393 - E-502)
<b>End Use Properties:</b>	
1- Abrasion Resistance	Abrasion tester / Rub tester
2- Adhesion tests	Manual (finger - Scotch tape)
3- Block resistance	Block-point tester (ASTM D-2793)
4- Skid resistance	(ASTM D-1894) (TAPPI method 503)
5- Light fastness	Sunlight - Fadeometer - Weatherometer (ASTM D-3424)
6- Odor & taste	Jars (ASTM E-462/619)
7- Heat seal resistance	Sentinel heat sealer - Temperature controlled iron
8- Water resistance	Manual (ASTM D-279)
9- Lamination tests	Tensile tester

<b>PAPER Testing:</b>	
<b>Printability</b>	
<b>Appearance Properties:</b>	
1- Brightness	Spectrophotometer - Brightness tester - Elrepho (ISO 2469)
2- Whiteness	Spectrophotometer (TAPPI T 442) - Elrepho (ISO 11475/6)
3- Gloss	Glossmeter (TAPPI T 480) - (ISO 8254-1/3)
4- Opacity	Visual - Opacimeter (TAPPI T 425) (ISO 2471 - Elrepho)
5- Colour	Spectrophotometer - Colorimeter - Elrepho (ISO 5631)
<b>Chemical composition &amp; related properties:</b>	
1- Coating composition	
2- Fiber & filler composition	Chemical analysis
3- Moisture content & relative humidity	Hygrometer - Moisture meter
4- pH (acidity & alkalinity)	pH meter
5- Sizing & water resistance	Curl test method - Cobb size test - Water immersion method
<b>Structural properties:</b>	
1- Blister resistance of coated papers	Blistering apparatus
2- Compressibility, resiliency, hardness & softness	Monitor/Printing Surf system -
3- Dimensional stability	Multiple-section paper expansimeter
4- Formation & levelness	Visual
5- Grain direction	Manual
6- Internal bond strength	Z directional tensile test - Internal bond impact tester
7- Porosity	Porosimeter - Gurley densometer
<b>Surface properties:</b>	
1- Cleanliness of surface	Manual - Printing press (TAPPI T 437)
2- Ink absorbency	Vanceometer test - IGT - K & N test (TAPPI UM 519)
3- Printability	IGT Printability tester
4- Smoothness/Roughness	Smoothness tester - Smoothness gauge (TAPPI T 538 / UM 535)
5- Surface strength & pick resistance	Dennison wax test (TAPPI T 459) - IGT (TAPPI UM 591)
6- Wire & felt sides	Manual (TAPPI T 455)
7- Air Permeance	Air Permeance tester (TAPPI T 460/547) - (ISO 5636/3/4/5 - 11004)

<b>Runnability &amp; end use:</b>	
<b>Composition related properties:</b>	
1- Adhesion to surface	Head & Tail tester (TAPPI UM 512/559/564)
2- Flame resistance	Manual (TAPPI T 461)
3- Lightfastness	Fade-Ometer (TAPPI UM 461)
4- Moisture content	Weight - Hygrometer - Sword sensor
5- Permanence & durability	Brightness loss - Folding endurance - Tear resistance (TAPPI T 453/544)
6- Resistance to chemicals	(TAPPI UM 585)
7- Water & water vapor resistance	(TAPPI UM 596/579 - (TAPPI T 432/491)
<b>Mechanical properties:</b>	
1- Bursting strength	Mullen test (TAPPI T 403/807/810) - (ISO 2758 / 2759)
2- Folding endurance	Schopper method (TAPPI T 423) - MIT method (TAPPI T 511)
3- Bending resistance	Bending tester (ISO 2493 - TAPPI T 556)
4- Stiffness	Stiffness tester (TAPPI T 543/451/489)
5- Tearing resistance	Tearing tester (TAPPI T 414/496) - Edge tearing resistance (TAPPI T 470) ISO 1974
6- Tensile strength	Pendulum type tester (TAPPI T 404) - Tensile tester (TAPPI T 494) ISO 1924-2
7- Wet strength	(TAPPI T 456)
8- Compression strength	Compression strength tester (TAPPI T 826) - (ISO 9895)
9- Crush testing	Crush tester (TAPPI T 825/809/822/843/811/823/838/839/821/829) (ISO 3035/7263/12192/3037/13821)
<b>Structural Properties:</b>	
1- Apparent density	Pendulum type tester (TAPPI T 410)
2- Basis weight & grammage	Weight (TAPPI T 410) (ISO 535)
3- Calipar & bulk	Micrometer (TAPPI T 411)
4- Curl & sheet flatness	Visual
5- Dimensional stability	PIRA PET Dimension change gauge - Measuring
6- Grain direction	Manual
7- Porosity	Porosimeter - Gurley densometer
8- Wire & felt direction	Manual (TAPPI T 455)

<b>Surface properties:</b>	
1- Abrasion resistance	Abrasion tester (TAPPI T 476) - Ink rub tester (TAPPI UM 487)
2- Smoothness / Roughness	Smoothness/Roughness tester - Smoothness gauge (TAPPI T 538 / UM 535)
3- Cleanliness	Manual - Printing press (TAPPI T 437)
4- Frictional resistance	Friction / Slip testing equipment (TAPPI T 503/542)
<b>PRINT Testing</b>	
1- Density	Reflection Densitometer (ISO 12647)
2- Colour - Colour difference	Spectrophotometer (ISO 12647)
3- Dot Gain	Reflection Densitometer (ISO 12647)
4- Dot Area	Reflection Densitometer (ISO 12647)
5- Contrast	Reflection Densitometer
6- Hue Error	Reflection Densitometer
7- Grayness	Reflection Densitometer
8- Efficiency	Reflection Densitometer
9- Colour Gamut	Spectrophotometer
10 -Trapping	Reflection Densitometer
11- Blanket & Plate Packing	Packing gauge
12- Slur / Doubling	Visual (control strip)
13- Grey Balance	Spectrophotometer
14- Colour register	Register marks + magnifier
15- Roller gauges	Durometer
16- Blanket Hardness	Durometer
17- Viewing conditions	Standard lighting 5000/6500 Kelvin
<b>PLATE Testing</b>	
1- Dot Area	Reflection Densitometer
2- Resolution	UGRA/FOGRA Microline control strip
3- Exposure time	Grey Scale / UGRA/FOGRA Microline control strip
4- Relief height (Photo engraving)	Depth Micrometer
5- Shoulder angle (Photo engraving)	Micrometer
6- Hardness (Flexo)	Durometer
7- Image elongation (Flexo)	Vernier plate
8- Cell depth (Gravure)	Micrometer / Microscope
9- Cell-to-land ratio	Microscope (ratio)

<b>FOUNTAIN Solution Testing</b>	
1- pH degree	pH meter
2- Conductivity	Conductivity meter
<b>FILM Testing</b>	
1- Density	Transparency Densitometer
2- Dot Area	Transparency Densitometer
3- Screen Ruling	Screen ruling indicator
4- Scren Angle	Screen angle gauge
<b>BINDERY Testing</b>	
1- Resistance of shoulder of spine	Universal Book tester
2- Sewing stability	Universal Book tester
3- Resistance of signatures to loosening	Universal Book tester
4- Resistance of book block to splitting	Universal Book tester
5- Stability between book block & cover	Universal Book tester
6- Joint pull test	
7- Cover pull test	
8- Cover flexing test	
9- Opening & closing test	
10- Spine pull test	
11- Coating adhesion test for picking	
12- Thread count test	
<b>Total of 118 tests</b>	In addition to their software & a full colour management system
76 Recommended tests for PRTC	
(Standards are between brackets)	
<b>ISO</b>	International Standardization Organisation
<b>TAPPI</b>	Technical Association of the Pulp & Paper Industry
<b>ASTM</b>	American Society of Testing & Materials



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