

F O C A L

DIGITAL PRODUCTION CHALLENGE 2011
Thursday 24 to Saturday 26 November 2011, Oslo

Technical Focus

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EXHIBITION

35 mm / 70 mm



SD / HD / 2K / 4K

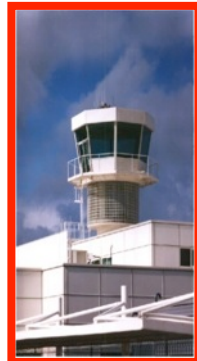


SD / HD



TV Broadcast
DVD Internet

POST PRODUCTION



SHOOTING CONSTRAINTS



Jungle



Island



Helicopter



Studio

?

?

?

?

?

CHOICE OF RECORDINGS

■ Tape recording



■ HDD recording



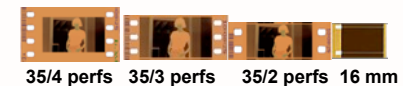
■ SSD recording



■ Optical Disk rec



■ Film recording



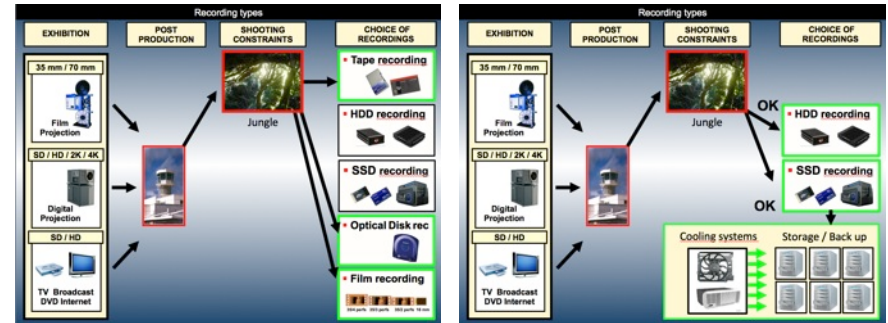


It is always advisable to take the post house as a kind of control tower to decide how to record – based on shooting constraints and exhibition devices.

Several typical cases have been examined:

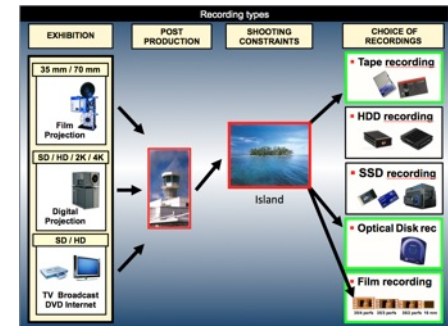
■ Shooting “in the jungle”..

Tapes, optical disks and of course film can be solutions, but when you need a better level of digital acquisition, hard drive can be used with cooling systems. Anticipation! Transferring on HDD and erasing the original is not safe enough! The most reliable support is still making two backups on RAID 5 HDDs or LTO tapes.



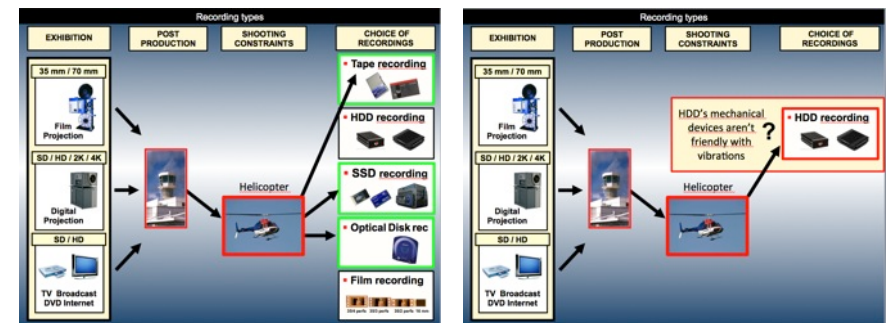
■ Shooting “on an island”:

Tapes or optical disks are a safe and more robust choice than files. Optical disks are very safe and cheap. They have the advantage of giving you proxies which the director can give to editing. Their sizes are very thin, which makes it easy to handle in documentaries and when shooting abroad. But the limitation of bitrate (50 Mb/s) doesn't allow to use it for high end productions. However, always check previously with the post house what they can handle.



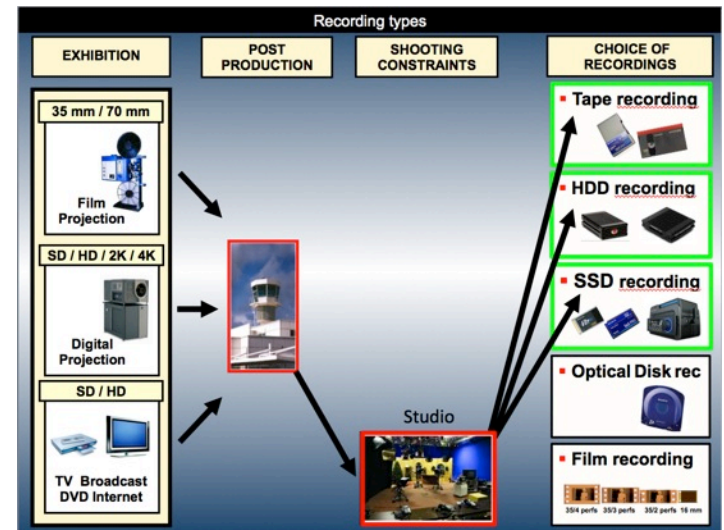
■ Aerial shooting:

Choose tapes, SSD or optical disks instead of HDDs, which aren't vibration-friendly. Advantages of using digital instead of film becomes obvious when you have to reload. On-board recorders save time and fuel. However, it is important to consider having a good codec to cope with highlights and to provide a good dynamic range when doing sequence shots.



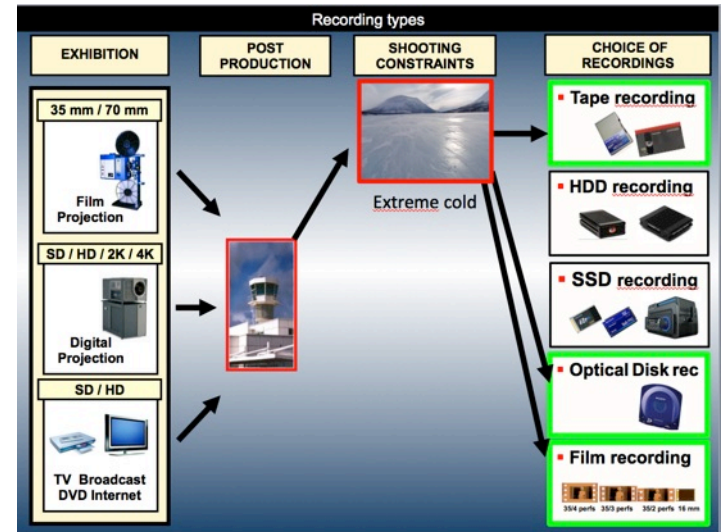
■ Shooting “in the studio”:

Choose HDDs or cards because of the easy-to-control environment of the studio.
 Cards may even become a storage device as soon as their price comes down. Presently, they are still too expensive.
 Once again, transferring on HDD and erasing the original is not safe enough. The most reliable support is still to make two backups on RAID 5 HDDs or LTO tapes.
 (See Focus 2009 on archiving)



■ Shooting “in extreme cold”

Choose tapes, optical disks and film.
 Avoiding a data management village can be a good idea in a frozen place, but it’s always a question of management on location which can help you to use HDDs or SSDs. Anticipate the local issues!
 Issues won’t come from tapes and optical disks, but mainly from the electrical parts of the camera and the batteries at a temperature of 30° below zero. To get back to an old Arri III camera may be a good solution in extreme cold.
 Mechanical items vs electrical ones: mechanical items always win in this situation.



Alexa (Arri)

1 CMOS Bayer sensor 12 & 16 bit Raw
 3392 (h) x 2200(v) photosites
 Resolution around 3.2K @ with Alexa studio



ARRI Alexa

Assets:

- Small and lightweight camera (approx. the size of an Arri 416), well-balanced;
- Robust and simple;
- Versatile workflows;
- Simple workflow and good results when using ProRes 4:4:4 (DNxHD will be available mid-2012);
- Uncompressed Arri Raw workflow (better quality for grading) becoming more and more affordable;
- Reliable “internal lab” in the camera, good monitoring from a clever de-bayering process, what you see is more or less what you get;
- 14 stops exposure latitude, easy to expose, very good latitude;
- User-friendly menus, easy to set;
- EI 800 ASA, very good for night shooting without noise level (“digital grain”);
- 120 fps with ProRes 4:2:2 ;
- Recording time on 64 GB SxS PRO cards: 30min in ProRes 4444 ;
- Alexa Studio with optical viewfinder, 4:3 aspect ratio of the sensor allowing use of anamorphic lenses, behind the lens neutral density filters;
- Alexa M with T-Block adapter;
- ARRI worldwide service, reliable websites.

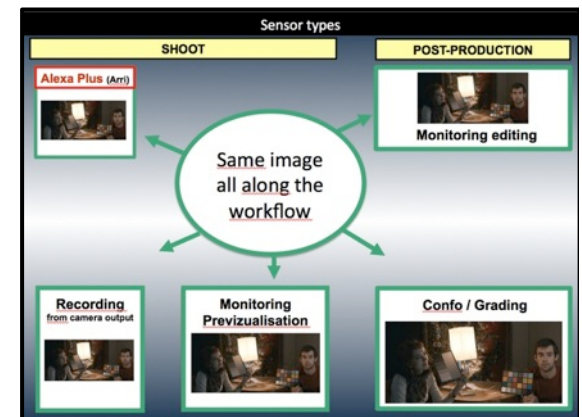
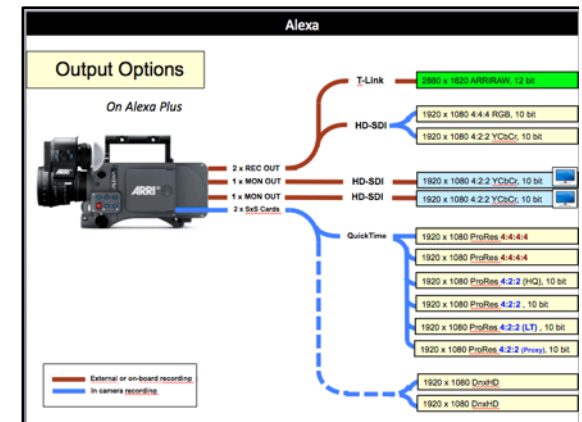
Remarks:

For Alexa and Alexa Plus,

- Little delay and during pan and tilt, strob effect in the viewfinder.
- Needs of neutral density filters when using camera outdoors to get maximum of highlight reproduction.

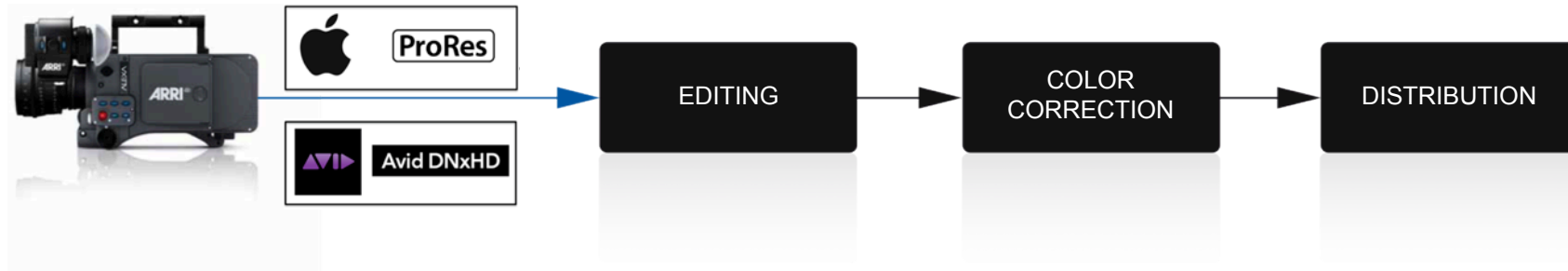
Recommendation:

- For green screen, better set the camera at IE 200 ASA.

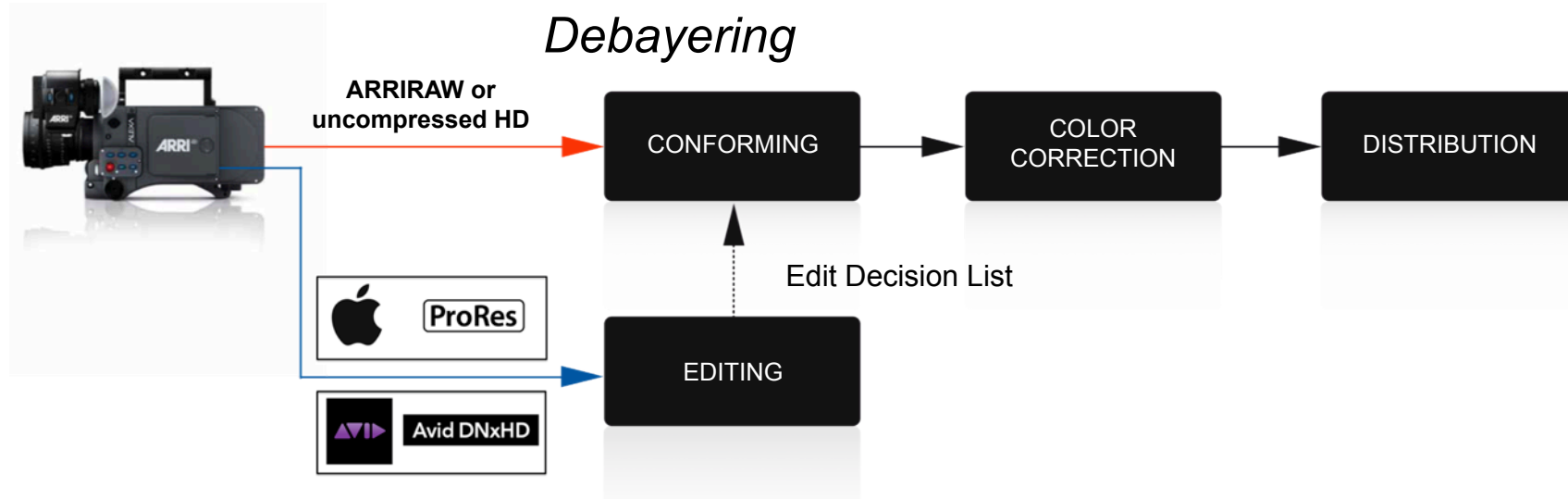


Alexa Workflows

ProRes or DNxHD Workflow



Arri Raw workflow



RED Epic

In January 2012, there was only one 4K camera: the F65.

Even if the camera can record 5K images, it doesn't mean that the Epic has a 5 or a 4K resolution. The confusion comes from the fact that a sensor owns photosites, no pixels. Pixels are delivered at the end. That's the beginning of the marketing story.

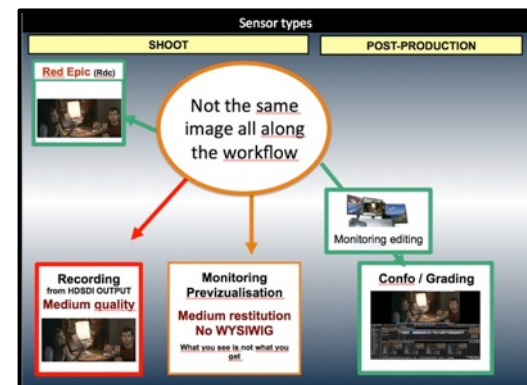
Assets:

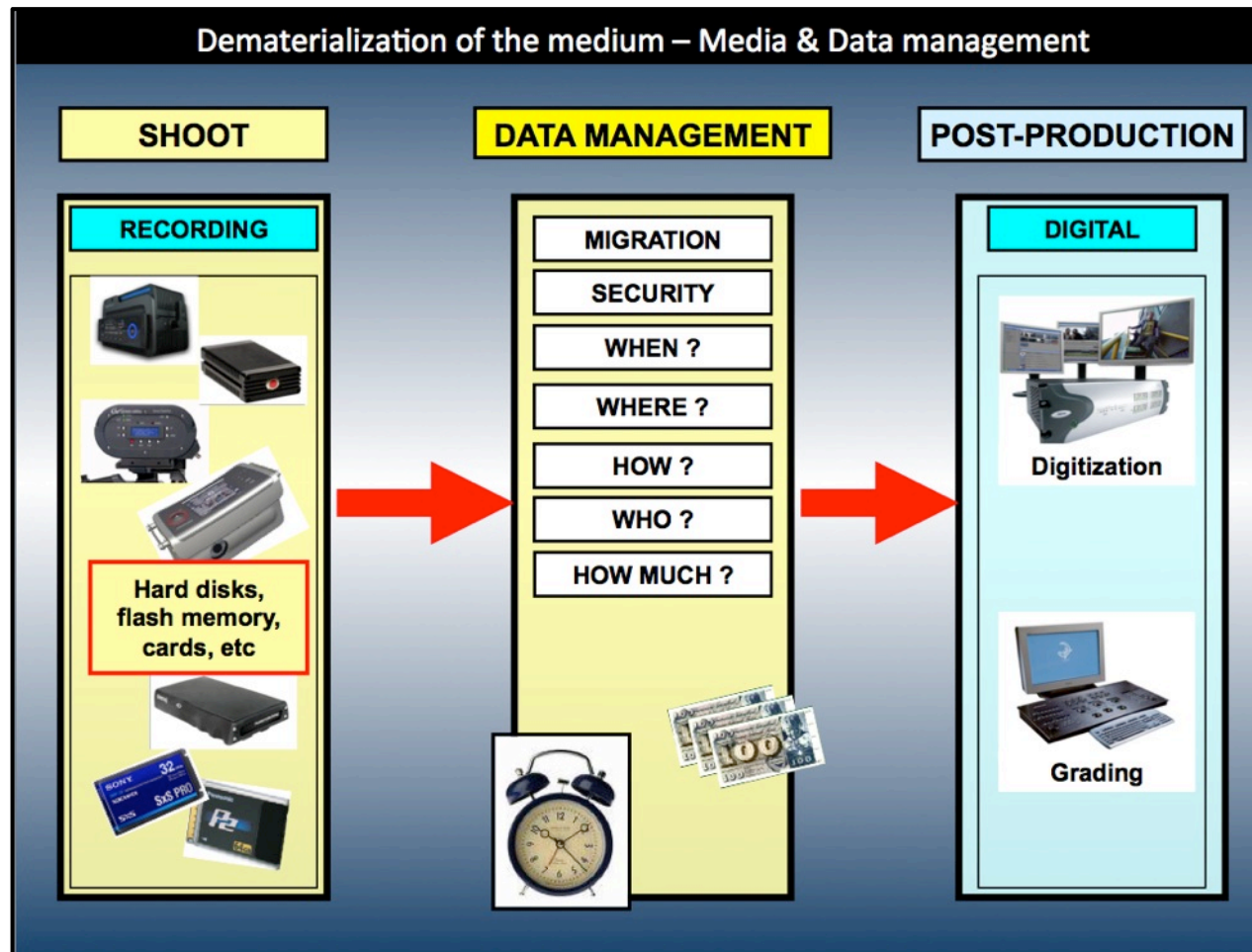
- Very small lightweight camera, perfect for stereoscopic shooting;
- Medium cost body;
- Real improvement (with MX) of the image regarding the skin tone, the latitude is definitely better than the former Red One;
- 10.5 stops exposure latitude;
- Different compression levels, 3:1 to 18:1;
- Best exposure: IE 250 ASA (to avoid noise), or IE 800 ASA (to avoid highlight clips) ;
- HDR (High dynamic range) possibility to extend the latitude up to 13 stops (over HDR + 3 strong risks of motion blur);
- 120 fps with 4K HD@ 10:1 compression;
- Thanks to Red, many indie movies have been achieved and it has created an emulation between camera manufacturers. This camera belongs to a different marketing approach. It has its own advantages and its limits related to the price.

Remarks

- When using the full sensor (5120 (h) x 2700 (v) photosites), be aware about lens vignetting.
- Medium quality of monitoring resulting from "medium cost" real time debayering;
- HDR (High dynamic range) lead to handle 2 x data in post;
- Camera not so easy to balance when hand-held shooting;
- Get to know the "DSLR-Red" philosophy before starting a movie. Reduser.net is a community with geeks enthusiastic approach and limited power of criticism.
- The workflow has to be established with many checks in preparation because of the change of version (build).

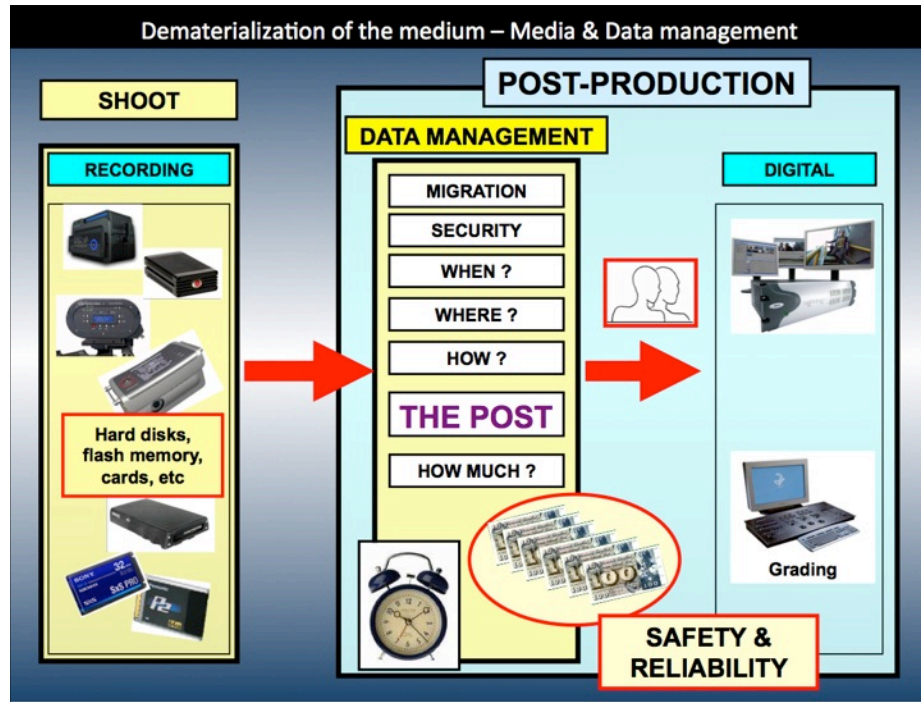
RED EPIC
 (Red Digital Cinema)
 1 CMOS Bayer sensor 12 & 16 bit Raw
 5120 (h) x 2700 (v) photosites
 Resolution around 3.4K when setting
 the camera @ 5K FF





Data management is one of the keys of the workflow when productions use file recording.

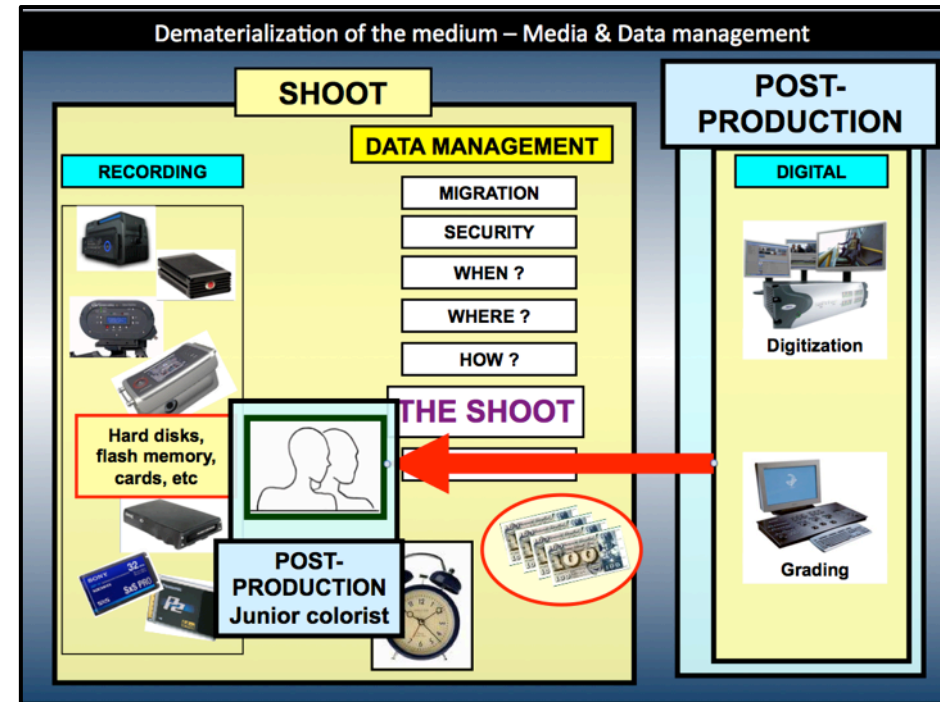
The following pages present four different methods.



Option 1

The post is in charge of the data management in its facility.

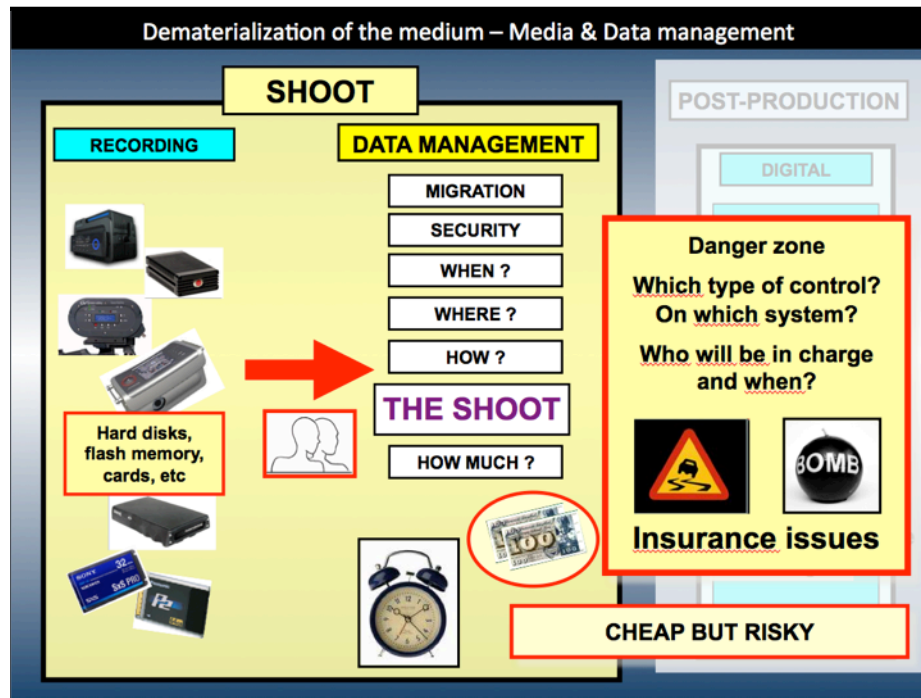
- Advance of safety and reliability;
- Higher costs;
- Issues when shooting abroad or far from lab.



Option 2

The post is in charge of the data management on set through a junior colorist.

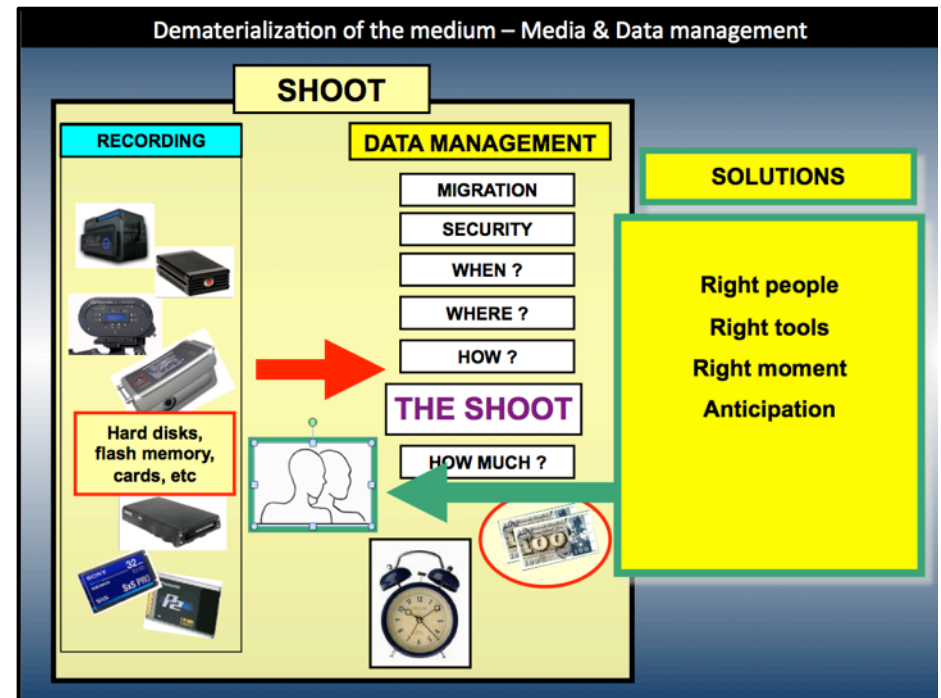
- Advance of safety and reliability;
- Flexibility;
- Possibility of efficient check;
- Possibility of pre-grading on set.



Option 3

The production is in charge of the data management on set.

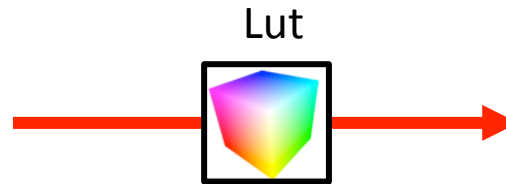
- Advance of flexibility;
- Lower costs;
- Issues of insurances.



Option 4

Same than Option 3, but with trained technicians who are able to check footage and to do back-ups with a maximum of reliability.

With new cameras using log curves, it is impossible to show producers the flat, low, desaturated image without pre-grading. A table of conversion (Lut: Look-up table) is used to correct the image and/or to simulate a space colour of final destination (example: Kodak or Fuji film lut for a film out).



How to see the same image all the way through the workflow?

Monitoring / shoot



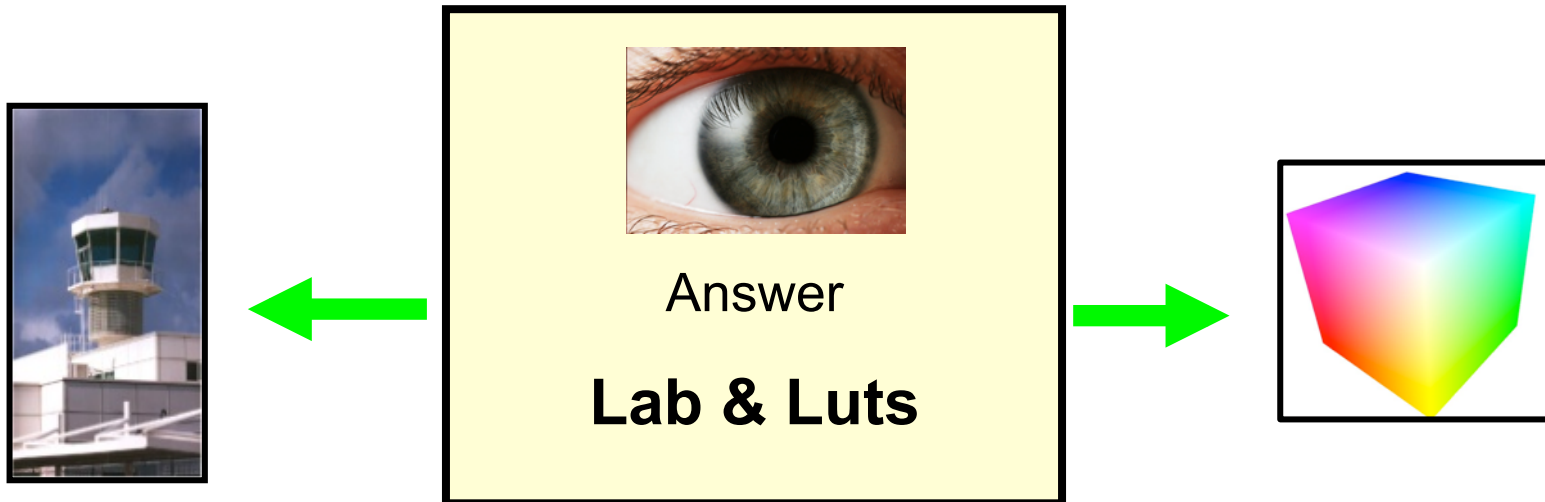
Monitoring / editing



Grading



- Consider the workflow as a whole and the result as the only standard.
- Consider the lab as the center of the workflow.
- Highly rate both the postproduction's and the colourist's involvement.



Monitoring / shoot



Monitoring / editing



Grading

