



#COLOR19

Integrating mobile and tablet photography into color-managed workflows

Kevin O'Connor and Son Do

Advancing Graphic Communications



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Welcome

- About the presenters
 - Kevin O'Connor is a color workflow consultant, graphic designer, photographer, and educator.
 - Son Do is co-founder and technical officer of Rods and Cones, a leading color management company.
- About the listeners!
- Goals of the presentation

Welcome—About the Listeners

- This presentation is designed for people who want to get the best image and color quality from mobile device photographs.
- It shows how to capture, edit and print mobile device images, and various possible pitfalls.
- The presenter will ask about your specific needs for the session to address as well.

Session Goals

- Discuss where color can go wrong and identify fixes.
- Discuss the current state of the art, and its future.
- Discuss management and integration of mobile device images into color-managed professional workflows.
- Your requests.

Why bother with phones and tablets?

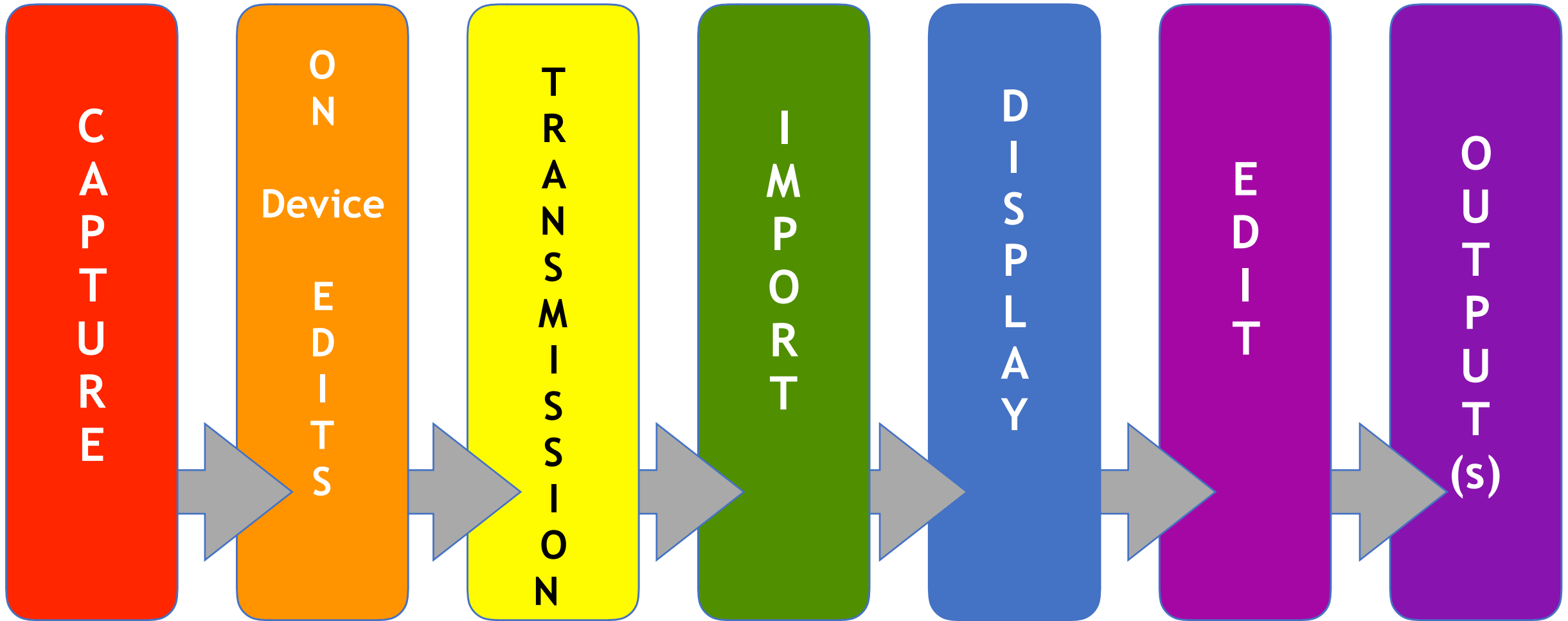
- Phone and tablet cameras are being used as primary image creation devices in multiple publishing workflows.
- These devices will continue to grow in both use and quality; that train has left the station!
- Given the rise in their use, it's important to define best practices for integrating photography from these devices into color-managed workflows.



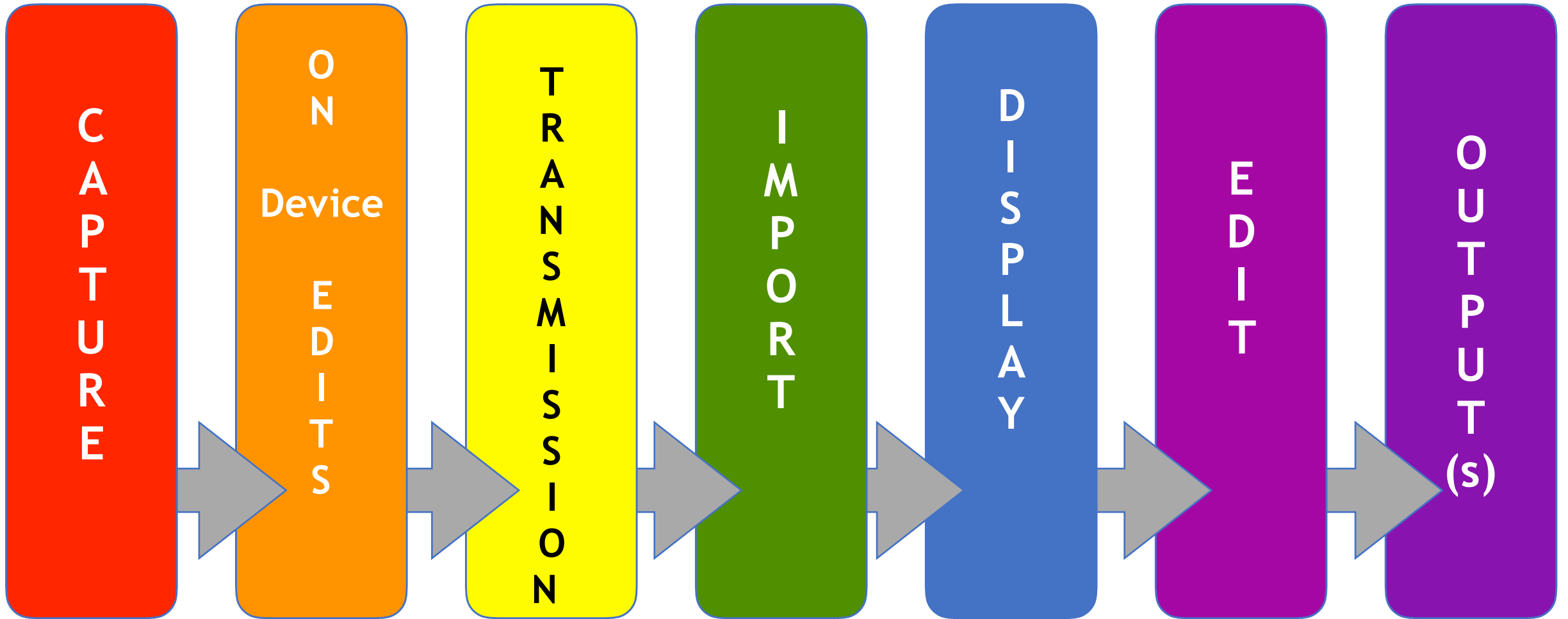
The best camera is the one you have with you.

- Everyone has a phone.
- Not everyone has a good digital camera; not all who do use it correctly!
- Cost-conscious employers don't want to pay a separate photographer, either on staff or per job.
- Good enough, however, isn't always that good.

At what point(s) can color go wrong?



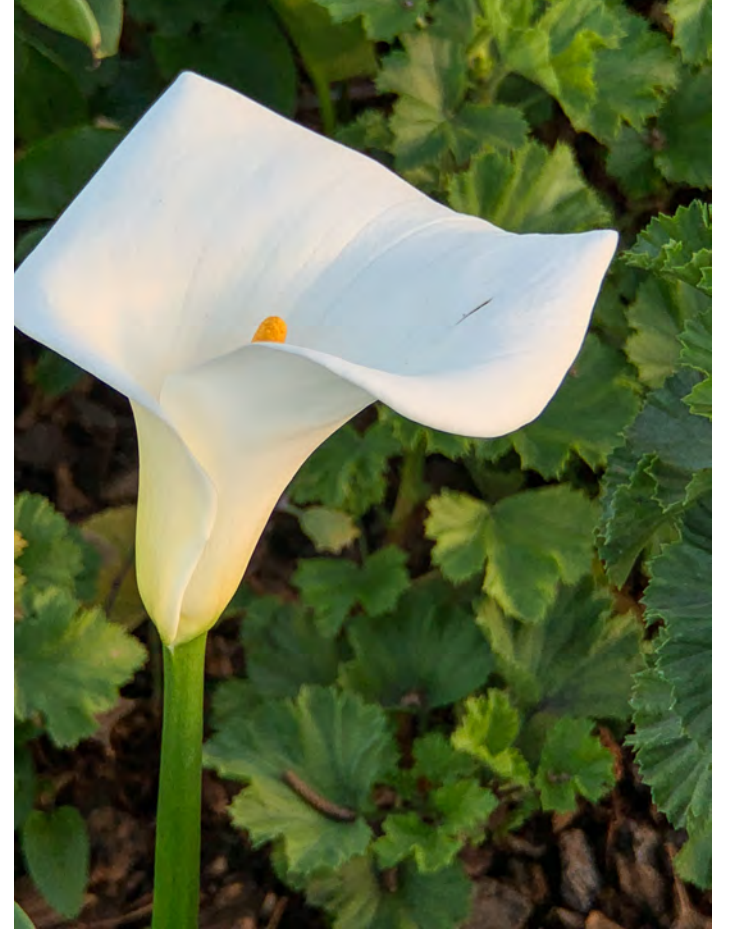
All of them!



Capture Challenges

- These cameras can be erratic in the quality of images delivered, similar to other cameras.
- There are serious concerns about their color; three successive shots have significantly varied white balances.
- See photos of calla lilies to illustrate, on the next slide.

Capture Challenges



Three photos taken in rapid succession.

Capture Challenges

- Cameras can be erratic in their exposures; autoexposure is good but not perfect.
- Skill of the operators should be refined to expand their mastery of autoexposure and other camera capabilities.
- Just because everyone has a camera in their pockets, doesn't mean everyone is a skilled photographer—though this is often assumed!

Capture Formats

- The default format for most cameras is JPEG save for Apple's latest phones.
- Apple uses HEIC/HEIF (High Efficiency Image Format), which is an open standard.
- This format retains more image info in a smaller compressed file with higher quality, in 16 bit color.
- Adobe Photoshop, Lightroom, Camera RAW all have support for this format.

16 bit color vs. 8 bit; why bother?

- 2 bit color = 2^1
 - 2 values, black or white
- 8 bit color = 2^8
 - 2 to the eighth power = 256 values, from black to white
- 16 bit color = 2^{16}
 - 2 to the sixteenth power = 65,536 values, from black to white

More Bits Are Better for Certain Images

- Gradients are smoother
- Banding in Sunsets, for example, reduced or gone
- JPEGs only support 8 bit color.

Capture Formats

- RAW capture can be done with the addition of supplemental software for both Android and Apple devices.
- For images to be edited and enhanced, saved, RAW is often best.
- RAW is often saved as .DNG format by these apps.
- Some are free, some are Android only or Apple only.

Capture & Editing Software: 3rd Party Tools for Pro Workflows

- Some of the most highly rated are:
 - Halide
 - VSCO
 - Adobe Lightroom CC
 - ProCamera
 - Camera+2
 - Snapseed (editing only)

Computational Photography Expands Capabilities

- Computational photography is the use of computer calculations to create images that would be hard or impossible to do with a single, standard capture.
- Various cameras already do computational photography.

What's Coming: More Computational Photography Will Expand Capabilities

- Current examples include:
 - automatic High Dynamic Range images(HDR), capturing multiple exposures very rapidly to create a perfect exposure from sections of each capture.
 - Google Night Sight, for superb low light images
 - Apple does Live and Portrait Modes; knows when eyes are closed, and when people are smiling.

What's Coming: More Computational Photography Will Expand Capabilities

- Much more will be coming...

Amaryllis shot with iPhone Xs Max in Portrait Mode; note imperfect darkening of background to either side of the main bloom. This tool will only improve over time...



What's Coming: Full Photoshop on iPad

- Adobe announced PS on iPad coming in 2019.
- This is part of Adobe's new strategy designed to boost subscription sales by focusing on mobile apps.
- Mobile devices are viewed as the wave of the future.

Editing Images on phones and tablets.

- How do you trust your edits?
- Can't currently easily do an ICC profile on a tablet.
- Need to check the quality of the device side to side, top to bottom. You can use i1Pro or Spyder to measure, as well as other devices.
- For Photoshop, how ICC profiles will be handled is yet to be explained.

Gray card workaround

- Carry a neutral gray reference of some sort, such as an X-Rite ColorChecker.
- The easiest would be on a keychain; consider this one:



Gray card workaround

- Put the grey reference in the frame, in the same lighting. You can use the gray reference in the ColorChecker, or the full target, which includes a row of gray reference patches at differing values.
- Capture the image; if there's not room, shoot with and without the reference.
- Click balance in Photoshop, Lightroom or Camera Raw, among others.



Gray card color

- Put the grey reference in the frame, in the same lighting. You can use the gray reference in the ColorChecker, or the full target, which includes a row of gray reference patches at differing values.



Gray card color

- In this image the gray card is the background.
- Capture the image; if there's not room, shoot with and without the reference.



Gray card color

- Click balance in Photoshop, Lightroom or Camera Raw, among others.



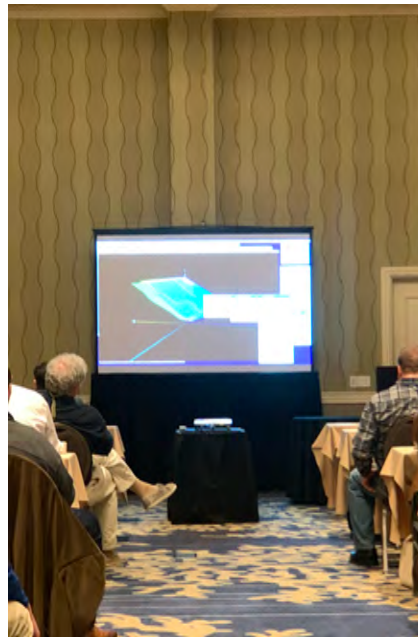
Capture Cautions: the Basics

- What looks good (in focus, correctly exposed, etc.) on the small screen may not look good when enlarged to print.
- The less light, the higher the risk of lower quality images. Fuzzy, grainy, noisy (esp. in shadow areas) images are surprisingly common.
- The standard wide angle lens on most phones doesn't get close enough to fill a frame without major cropping.

Equivalent Angles of View on 35mm

- Wide angle lenses are considered “normal” on phones.
- Apple’s iPhone Xs “normal” lens is actually equivalent to a 26mm lens on a 35mm camera; this is significantly wider than has been recommended for a “walking around lens”.
- Apple’s “telephoto” lens is actually 52mm equivalent; this is “normal” on 35mm, not telephoto.
- For real telephoto, consider adding supplemental lenses.

“Normal”/“Telephoto”/Normal + “Tele lens”/“Telephoto” + Tele lens



Shot in a Color 2019 session; 4 different fields of view, using built-in and supplemental lenses...

What to Do When Results Disappoint?

- Ban mobile device photography?
- Live with it as is?
- Make it better!

3 Basics for Including Mobile Devices in Print Workflows

- Test phones to be used; quality can vary significantly. (see the sample prints from iPhone 5s vs. iPhone Xs)
- Quality & Image Sizes are both important.
- Test the skill of those who will be shooting and help them learn to get the most out of their tools.
- For key employees, consider supplemental software and lenses.

Four Areas to Consider

- Quality and specifications (e.g. file size) of devices used; can they deliver what is needed?
- Skill of the operator.
- Supplemental software.
- Supplemental hardware.

Supplemental lenses

- These lenses either clip on the phone, or mount on dedicated cases; most clips won't work on cases.
- Wider wide angles, fisheyes, telephotos and macro lenses available.
- Example shown: the Moment telephoto doubles lens length. On iPhone Xs, the telephoto becomes a real telephoto, going to 104mm. Also available for other brands of phones.



Supplemental lenses

- Amazon special has big zoom reach (fixed, 16x).
- Price is so low (\$25.99) it makes me suspicious.
- Test before relying on!



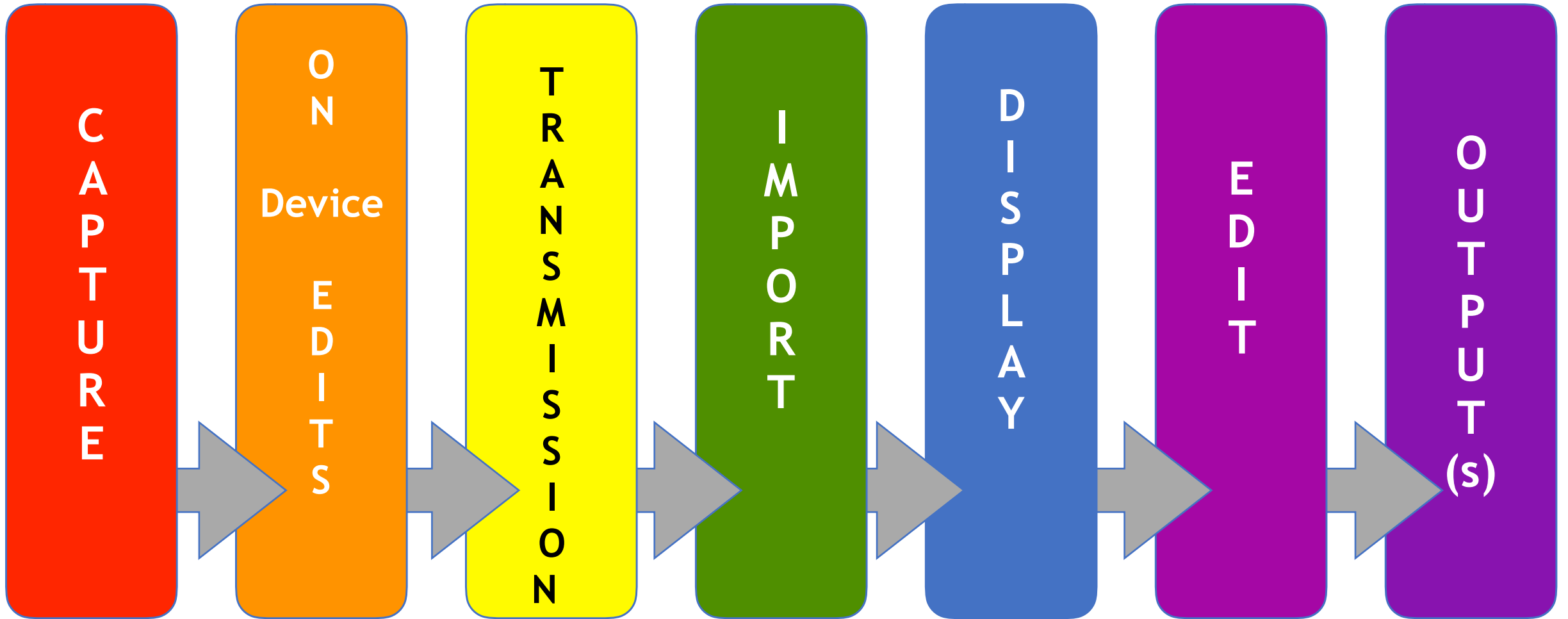
Pros and Cons: Supplemental Lenses

- Some nice enhancements to imaging are possible.
- More expensive models do a better job; one gets what one pays for.
- Have to carry them around; another small thing to forget or lose.
- Lens mount comes undone easily in pocket, as shown (e.g. Moment).
- Added costs.

Sample images in print to review

- These images were placed at size, at 300 psi. The iPad (current 6th gen. model) images, uncrossed are 8 meg. images; the iPhone Xs Max images are 12 megapixels.
- They were printed on an Epson P6000.
- Properly exposed and composed, they are more than adequate for print workflows.
- Properly color-managed, they show beautiful color in multiple light sources.

Workflow Steps



On-device Editing: Cautions

- Phone and tablet screens vary in quality (a lot).
- They also vary in consistency from side to side, top to bottom, diagonally, and from one to another (a lot).
- Why be surprised? Both are true of desktop displays also.

Transmission: How Images Get to the Next Step in Workflows

- Phones plugged into computers.
- Phones uploading to servers.
- Phones e-mailing.

Transmission: What Can Go Wrong?

- Phones plugged into computers; imports may or may not honor embedded profiles, which may or may not exist.
- Phones uploading to servers; not all servers are created equal. Facebook is not an acceptable server upload, but is often used by those who don't know better.
- Phones e-mailing; the program used to e-mail by default tends to resize the images downward. Some also strip out profiles, if embedded.

Editing on Computer Displays

- As in any color workflow, you will need:
 - Adequate quality screens, calibrated, and profiled.
 - Properly configured workspace; lighting, wall colors, etc.
 - Applications configured to respect and use profiles.

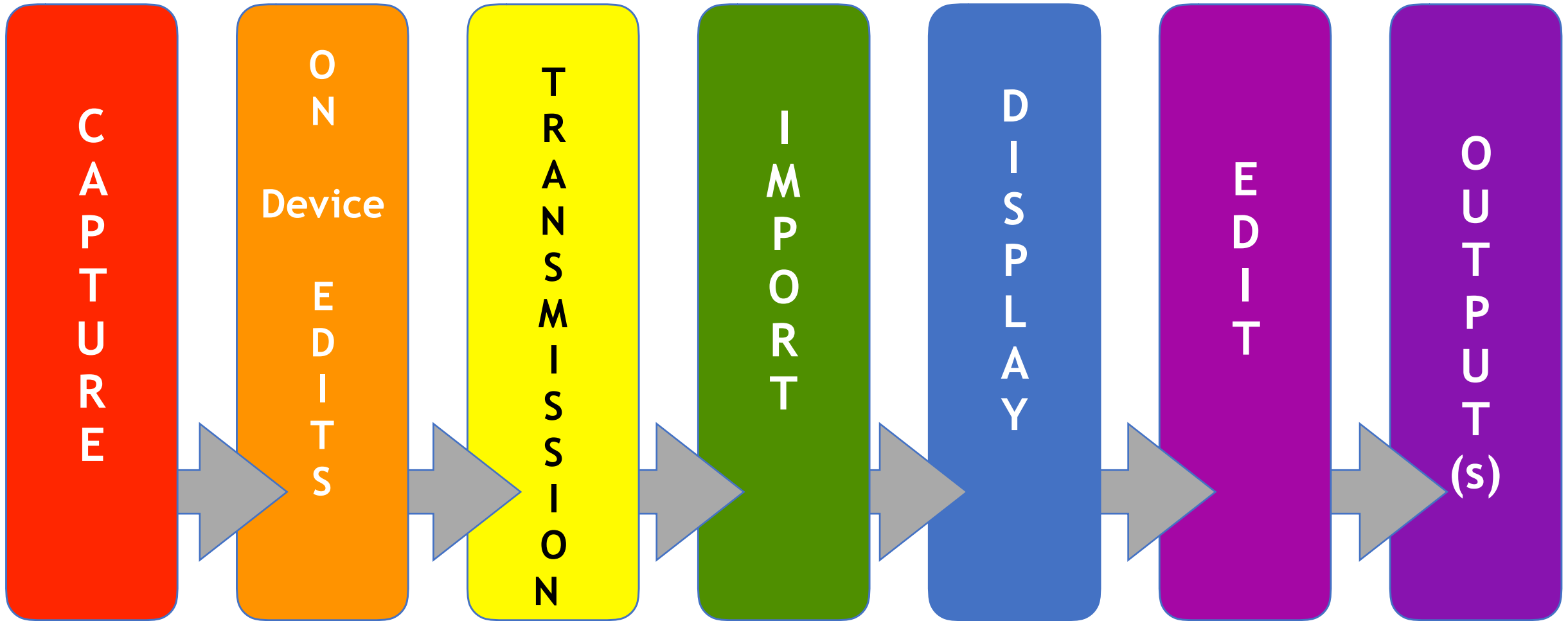
Editing Perils

- Ambient light
- Non-current calibrations used
- Tendency to edit for one destination and then save for all
- Reflexive conversion to one CMYK destination, instead of remaining in source colorspace to edit while previewing multiple destinations for best results

Best Editing Practices

- Preserve original color as long as possible in the workflow.
- Use built-in soft proofing capabilities to preview results of editing.
- Save originals; convert copies so you can always go home again.
- Leave a trail of color breadcrumbs.

Workflow Steps



Output Perils

- No profile for destination(s).
- Poor profiles for destination(s).
- Poorly labeled multiple profiles for same destination.

Multi-destination Output Strategy

- Prepare for current destinations.
- Be prepared for other future destinations.
- Don't ruin originals!

Trust but Verify?

No!

Verify first, then trust.



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Thank you for your attention.

Kevin O'Connor

kevin@MakeColorBehave.com

Son Do

son@RodsAndCones.com

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