

**NOTE: A Polish version of a slightly earlier version of this webpage, translated by Andrey Fomin, is available at <http://www.pkwteile.de/wissen/tworzenie-filmow-bez-inwestorow>**

# **MAKING MOVIES WITHOUT INVESTORS...**

## **A few things to keep in mind...**

***You CAN make your own movie!***

**All it takes is an idea, some planning,  
access to equipment, lots of time,  
and most importantly, *dedication!***

## **KEEP THE FOLLOWING IN MIND WHEN GETTING SET UP TO MAKE A MOVIE:**

Find friends to help (to loan equipment, serve as crewmembers, play the parts, donate the use of props or locations, etc.)

Start out modestly and build your own collection of equipment gradually as you need it or want to improve your quality.

### **CAMCORDER**

If you want to buy a camcorder, a usable new one with a few accessories can cost as low as \$250-\$750. Numerous choices are available in both standard-definition and various forms of high-definition. Start with one of the cheaper cameras until you are confident enough to invest in a more professional level model that may cost in the \$2500-\$7500 range, since by then their prices will likely be lower and/or they will have added features for the same price. However, be sure to get something in either the MiniDV or the now-discontinued Digital 8 format, preferably with manual overrides on exposure and focus and with an external microphone input. (An external a/v input jack can also be handy, as it will let your camera digitize analog audio and video.) The HDV format is increasingly used by television stations and semi-professionals for a substantially sharper image, but has some tradeoffs in performance and features unless you have a powerful computer. Do not get stuck with

buying a Hi8 or a VHS camcorder (both are analog and require more computer hardware to be usable) or one of those pocket-sized digital cameras that use small memory sticks to record highly compressed video files, no matter how tempting their low prices may be. Also avoid camcorders that record directly to DVDs if you plan to do editing (their compressed format loses quality and requires special software to edit).

Beware of consumer camcorders that record directly to their own hard disks or small memory cards as they may use their own special, digitally compressed format instead of the standard DV signal, again requiring special software to edit. Newer software and faster computers may support these formats, and if yours does, it can actually be much more convenient to copy the files from your camcorder's hard drive or memory card directly to your computer's hard drive with no need to capture footage in real time. However, if you then delete the original files from your camcorder or memory card so you can reuse them, you have the danger of losing everything you shot if anything happens to your computer's hard drive! You should always back up all your video files to one or more additional hard drives besides the one you are using to edit, or you risk losing everything. Tapes may be less convenient and more delicate, but are often a more reliable archiving medium than hard drives. If you plan to make movies regularly, you should either be prepared to buy lots of spare memory

cards (very expensive) or invest in a camcorder that uses mini DV tape.

There is another drawback to “tapeless” consumer camcorders that record mp4, mpg2, AVCHD, or other highly compressed audio-video file formats to a DVD, hard drive, or memory card. These formats were designed primarily to be watched, and not to be edited. Their picture may look impressively sharp when played back from the original recording, and that recording can be copied digitally with no loss in quality, but in order for it to be edited, the computer software must first “decompress” the file so special effects like fades, dissolves, color or brightness shifts, split-screens, etc. can be done. Then the edited version must be recompressed, introducing some image degradation each time this is done. It is entirely possible (even probable) that consumer high-definition video with a lot of post-production adjustments can turn out looking substantially worse than standard-definition DV footage with those same adjustments because of the different methods of image compression used. The DV format uses more memory space (about 12 GB per hour) than DVD, AVCHD, and other formats that may use only one to four GB per hour or even less, but the additional data makes the format hold up better through more editing adjustments, usually permitting a better final product with less “jerkiness,” “comb effects,” or “blocky-looking” pictures.

You may find it useful to buy two cheap DV or Digital8 camcorders, as you can use one to make exact digital

clones of your digital master tapes, besides serving as a backup camera, a second unit camera, or doubling as a digital audio recorder. *(NOTE: if you can afford a fancy camera that can shoot 24p instead of 30i, don't bother to use that setting unless you plan to transfer your video to film or to 24p Blu-ray after it is edited! It will result in a better image on film, but gives a degraded video image and requires special software settings for editing with normal video formats. Using a 30p setting, however, may improve image sharpness on most video monitors.)*

If you plan to shoot outdoors or anywhere the camera must move away from an electrical outlet, think about getting an extra long-life battery, despite their hefty prices (perhaps an extra \$120). It's easier and cheaper to shoot all day with a 12-hour battery than to keep several 2-hour batteries charged and on hand to change out when they lose power.

## **COMPUTER and HARDWARE**

If you need a new or better computer, you can do basic editing on a \$500 laptop and reasonably acceptable video editing on a desktop system priced between \$1000-\$2000, but if you can afford it, think of a "turnkey" (everything pre-installed) editing system in the \$5000-\$12,000 range. You'll need at least a gigabyte or two of RAM to edit video, but four to eight or more gigabytes of RAM will be drastically more efficient, especially with HD video. The faster your computer's processor is, the better your experience will be while playing and editing video.

When doing any sort of digital effects, having dual or even quad processors will help noticeably, especially if they are over two or three gigahertz each. Effects done with slower computers must first be “rendered” to a separate movie file before they can be played in real time.

Be sure to have a separate hard drive (internal or firewire external) exclusively for your audio/video files.

(NOTE: an external USB-only drive is not fast enough for efficient video editing using most high-quality formats. An IEEE-1394 firewire 400 connection will work fine for DV but a firewire 800 connection will work substantially better if you want to edit HDV. Also, a RAID setup will give dramatically improved video editing performance over a simple hard drive, especially with high definition formats.)

An external drive often costs less than ten cents per gigabyte, which comes to about an extra \$100-\$500 investment over and above your basic computer, depending how much editing and backup storage you need to do. It takes about 12-13 gigabytes to hold an hour of DV or HDV movie files, and you’ll want a capacity of at least ten to twenty times more than the running time of your finished movie—even larger if you plan to edit outtakes and/or make more movies later. A minimum size to think about is 300 to 500 gigabytes, and a terabyte or two would be better for a feature-length project or multiple short movies. (Don’t forget to set your editing software’s capture preferences to use the external drive as its scratch disk rather than your computer’s root drive!!) If you already have an old analog camcorder you want to use, you must get a digitizing video card for your computer that has

standard RCA video and audio inputs instead of (or in addition to) a firewire port. You will want to have either a built-in DVD burner on your computer, and/or a separate stand-alone DVD recorder (which works just like a VCR but with DVDs). Be sure your stand-alone DVD recorder is equipped with a DV firewire input so you can make DVDs directly from your camcorder and master digital tapes. If you copy the video signal from tape using the audio and video cables, quality will be significantly lower than if you use the IEEE-1394 “firewire” cable (which transfers the actual digital information itself instead of converting it to audio and video signals first).

If you can afford it, you will appreciate the convenience of a separate DV or HDV videocassette recorder so you won't need to use your camera to capture footage to your computer. These, however, range from about \$2000-\$6000, so will only be a useful investment if you plan to continue video production seriously. For roughly an extra \$1500, a portable firewire hard disk recorder is available for some cameras to use instead of or in addition to recording on tapes, and can hold over four hours of DV or HDV video. This can allow you to edit directly from that portable drive after shooting, with no need to capture the footage, but use it for HDV movies only if you have a PC (with Vegas, Premiere, or Avid editing software). As of mid-2007, HDV's “m2t” file format on these hard disks is unfortunately not supported by Final Cut (even though it accepts the HDV signal from the tape), so you'll still

need to capture the footage off the tape to Quicktime HDV movie files.

NOTE: If you have access to or decide to invest in a camera that supports the HDV and especially the AVCHD, DVCAM HD, XDCAM, HDCAM, or DVCPro HD formats, you will need a much more powerful computer with a very large and fast hard disc RAID to handle the higher data rates required for the better quality picture. Professional HD formats require massive storage and processing capacity and the reliability of a SCSI RAID, but you can actually edit HDV on a high-end laptop. Clever compression allows 1080x1440-pixel HDV files to take up about the same hard disk space as a standard 480x720-pixel DV signal, and still produce an impressively sharp image. However, the computer must do a lot of extra processing to display it, and even more to render edited footage back to the HDV format. The image must also be downconverted for playback on standard-definition TV sets or for encoding as a standard-definition DVD, which takes additional and expensive dedicated hardware and/or a huge amount of computer processing time. Some software can convert HDV files so they're easier to use on slower computers, but this takes up about four times as much hard disk space and often loses noticeable quality in the conversion back to HDV. The increasingly popular AVCHD high definition home camcorder format requires an even faster computer for editing and at the present time is better suited for simple home movies that will never be edited. High-definition DVDs, introduced to the



public in 2006 in two non-compatible formats, are not yet widely used, although the HD-DVD format was discontinued in early 2008 in favor of the “Blu-Ray” format. If you already have a high-definition television, a hi-def DVD player, and an HDV camcorder, you may wish to try a hi-def movie anyway. While blank BluRay and HD-DVDs are still extremely expensive, you can actually burn an HD-DVD format disc project to a standard 25-cent blank DVD but are limited to about 20 minutes of content instead of two hours and some players will not play it properly. HDV and AVCHD movie files can be exported to a hard drive, and if small enough will fit on a blank DVD-ROM or BluRay disc. If you export the movie back to your hi-def camcorder, you can connect your camcorder to a high-definition TV with an HDMI cable to watch it in hi-def. At this point in time, the most practical method of watching home-edited hi-definition movies is on a computer. You’ll still need to downconvert any high-definition project to a standard DVD for most people to be able to watch it.

[CLICK HERE](#) for a chart comparing the relative image resolution of various video formats. The standard-definition DV format is equal to the resolution capability of standard-definition DVDs but actually has a higher quality image because it uses less digital compression. The HDV format is almost as sharp as the higher-definition HDTV standard but again uses substantial digital compression to fit the information

onto small tapes and to make it practical for home computer editing. A standard Blu-Ray disc viewed at the full HDTV standard (1920x1080 pixels) is virtually as sharp as commercial theatrical presentations using the 2k digital projectors used in most digital movie theatres (though once again, movie files on Blu-Ray discs use a much higher compression rate than the digital files delivered to theatres on hard drives).

## **EDITING SOFTWARE**

Be aware that if you are a student, you qualify for substantial educational discount rates (like a third to half-off, sometimes even a quarter or less of the normal retail price) on full versions of major name semi-professional editing software like Avid, Adobe Premiere, and Final Cut (not to mention PhotoShop, Quark, Corel, and other useful professional software), so don't bother with the low-end consumer editing programs unless you already have them and know how to use them well. Windows Moviemaker and Apple's iMovie can do some amazing things, but you'll find them extremely limiting and frustrating if you ever try Premiere or Final Cut. If you have a PC, your best choices for a reasonable price are Adobe Premiere or Sony Vegas. If you have a Mac, you'll probably want Final Cut (although Premiere is now available for the new Intel Macs). If you can't afford the full versions, there are modestly priced "lite" versions called Premiere Elements and Final Cut Express that work the same way and do almost anything you'd need, and

usually allow you to import their project files if you ever upgrade. Be sure to investigate if new upgrades are due to come out, as you may be better off waiting a month or two so you can buy the newest version of whatever editing software you get. The latest version will be more likely to support newer cameras and formats, as well as adding useful features.

## **RECORDING MEDIA**

Blank digital tapes typically cost about \$4-\$6 per hour in the Digital 8 or MiniDV formats (but as low as \$2-\$3 when purchased in bulk by mail-order). Sony's premium "Digital Master" tape recommended for HDV, however, is about \$15-16 per hour. *Recording to DVDs, compressed hard disks, or small media cards is not recommended for anything other than home movies that will never be edited and movies you do not plan to keep after viewing them a few times or where picture quality is not important.*

Plan to shoot about ten times more footage than will be in the final movie. That means a single one-hour tape should be enough for shooting a six-minute short, but you'll need one more tape for your final edited copy and any trailer(s) or gag reel(s) of selected outtakes. Remember that a DVD copy is *not* archival and due to its compression rate it is of much lower video and audio quality than digital videotape. MiniDV and Digital 8 both record the identical format of digital files for computer editing, which are also identical to the professional DVCAM and DVCPro

DV video encoding formats, but each uses different size tape and format of cassettes. *ALWAYS* make a *digital tape copy* of your final edited movie to serve as your master, and make one or two backup digital tapes to insure against damage and tape dropouts. External hard drives are now cheap enough that you may also want to save your entire project with all its associated files on its own hard drive to make later revisions easier. Tapes will wear out with repeated use, but in the long term, rarely-played and properly stored master tapes are generally a much more reliable as well as a more convenient storage medium than a computer hard disk (and a film copy, though much more expensive, is the most reliable archival medium). A ten to twenty-minute short may take three or four blank tapes for your raw footage, plus another one for your final copy. *(Just about any brand of tape should record good image and sound, but you should always try to use the same brand of tape with your camera. This helps avoid video head clogging and tape dropouts due to the different types of tape lubricants and magnetic coating formulas. Get a head-cleaning tape if you need to switch brands at some point.)* With a volunteer cast and crew, your total production budget for a short need be only about \$20-\$50, and a feature-length movie perhaps ten times that, as long as you don't have to do extensive traveling or buy/rent/build fancy props or settings.

**KEEP THE FOLLOWING IN THE BACK OF YOUR  
MIND WHILE SHOOTING,  
AND ESPECIALLY WHEN PLANNING FUTURE  
PRODUCTIONS:**

The biggest technical flaw in most “no-budget” movies tends to be the audio quality. It is certainly possible to shoot entire feature-length movies using nothing but the built-in camera microphones, but the location sound will be mediocre at best. If you have no other option, be sure to shoot all dialogue in close-ups with the camera only a few feet from the actors, even if you don’t always expect to use the close-ups. The sound will be much clearer and in the editing process it can be dubbed over the video of medium shots and long shots of the same scene. If you plan to do more moviemaking, consider investing in your own professional microphone (\$100-\$500). This can plug directly into your camera’s mike input (assuming it has one), most likely using an adaptor box that will convert XLR inputs for a consumer camcorder (also at additional cost). Even with a good microphone, the audio quality recorded directly on the tape by many cameras is still only adequate for dialogue (especially cameras using the HDV and AVCHD formats). It is preferable to get a separate professional digital audio recorder with accessories (\$700-\$2000), using Digital Audio Tapes (DATs), hard disks, CDs, or solid-state CompactFlash cards. The cards are immensely more convenient than tapes and CDs, and they have no moving parts. Blank cards are substantially more

expensive than tapes or CDs, but a card recorder is usually cheaper than a DAT or CD recorder and memory cards continue to drop in price rapidly as they gain in popularity. A second digital camcorder can also serve for audio-only recording (and of course you'll need to double the number of videotapes you buy). Double system sound will probably require an extra crew person to record the audio. Accessories include items like extra cables, a boom, windscreen, additional microphones of different types, etc. You can capture the audio from a second camcorder directly from the firewire like your video, but you'll need to equip your computer with a CompactFlash card reader to transfer the audio files if you record on CF cards, and will need an audio card that has digital inputs and outputs to capture the audio if you record on a DAT. Be sure to set your digital recorder to record at 16-bit 48 kHz, which is the audio standard for digital video. (Do *not* use 44.1 kHz, which is the CD standard but would have to be upconverted to edit with your video, or anything lower, which is inferior and would still have to be upconverted.) If you value audio quality, don't even consider recording original sound in the .mp3 format, which is a highly compressed, low-quality format designed primarily to save space for distribution on the web and media players. With any double-system setup, don't forget to announce the scene and take number after you start the sound recording, or you'll never be able to match it with the correct picture without tedious trial and error!

The second biggest technical flaw in most “no-budget” movies is the lighting. Consider also investing in a modest professional portable kit of three to ten professional lighting instruments and accessories (\$600-\$3000 and up), or at least several hardware-store worklights on stands (perhaps \$100 worth to start). Practice lighting and photographing a few scenes in different situations using different placement of key, fill, and backlights, background lights, and “kicker” lights, along with filters, “barndoor” shades, “gobos,” etc. Do not overlight scenes (do not be afraid of including shadows and darkness), but aim sidelights and backlights on your actors and key props (putting a rim of light around their edges) to keep them from blending into the background. Bring up the overall level of natural room lighting in low-light situations (to fill in deep shadows enough to get some detail within the lower contrast limitations of video) by bouncing light off ceilings, walls, or other reflective surfaces. Avoid bright sunlight that has strong shadows. Lower the contrast in bright sunlight scenes by directing fill light into the shadowed faces of the actors. Experiment with various effects before starting production on a major project. Three-chip cameras and HDV cameras typically need more light than one-chip DV camcorders. ALSO NOTE: boosting the video gain electronically to compensate for low light will create much more distracting and objectionable picture artifacts in the HDV and AVCHD formats than with standard DV. Recording a good original image is better than trying to fix it in the postproduction stage.



If your camera has adjustable image settings, experiment with things like sharpness, white balance, gamma, knee point, and others to get a “look” that you like under different lighting conditions. Shoot preliminary tests on your locations if possible. Your camera may allow you to save your settings as different “profiles” that you can recall when desired.

The third biggest technical flaw is slow pacing and limited camera setups. The bare-bones style of moviemaking, telling a story with a simple chronological series of scenes filmed in long shots and long takes, was already becoming a sign of low budgets and lesser talents by 1911 for silent films and by 1931 for sound films. Oddly enough, it is also very common in the work of amateur and beginning filmmakers who grew up watching ultra fast-paced editing on television. Digital videotape is cheap, almost free compared with 35mm film, or even 16mm or Super 8 film. It’s also instantaneous, so you can review what you’ve shot on the set, and erasable so you can record over obviously unusable footage (though it’s cheap enough not to bother doing that). While it is good discipline to shoot only what you expect to use, when using video rather than film you should not hesitate to shoot as many takes as you need for actors to get their timing right and for the camera’s framing to be aesthetically pleasing throughout the scene. However, do NOT waste time or tape doing a single setup over and over. If you want the option of shifting your editing style between fast and slow, you must shoot many *different*



views of each scene. Shoot plenty of “coverage” with different camera angles, close-ups, inserts, and cutaways so you can tighten the pacing and build better performances during the editing if necessary (not to mention covering continuity gaps). [For example a typical two-person conversation might be shot five or more times all the way through from different camera positions: once in a medium or long shot showing both people, once each in a medium close-up over the shoulder of one person, and once each in a tight close-up on one person’s face. Depending on the mood of the scene, other versions might also be shot, using slow zooms in or out, or a moving camera. You might also shoot brief close-ups of feet shuffling, fingers tapping, a clock on the wall and/or wristwatch, calendar, telephone, book(s), newspaper(s), magazine(s), any food in the scene, other people observing, etc., to be cut in as emphasis for key moments.] If your main audiences will be watching your movie on TV sets rather than a large theatre screen, be sure to shoot enough close-ups so they can see what they need to see in the scene (but don’t neglect to include enough long shots so they can understand what’s going on and where). If you’re shooting HDV, take advantage of the extra resolution to use more long shots, but don’t forget close-ups, either. Be aware that it is possible to reframe slightly in the editing process by electronically zooming in on the picture (with a noticeable loss in image resolution) and moving it around, but there is no way to zoom out any further or actually move the camera somewhere else. While both shooting and editing, remember the “rule of thirds” and the “180-degree line” principles, and consider whether you want to follow them or ignore them or intentionally violate them for some effect. The same goes for matching on action and other continuity editing principles. You can’t “fix it in post” if you didn’t shoot enough material in the first

place. Don't forget to USE A TRIPOD and/or a camera stabilizing brace such as a "Glidecam" or its equivalent unless your intention is for the shaky *Blair Witch Project* home-movie look (which is usually better reserved only for particular types of scenes for a specific effect, and can be quite effective in certain situations).

A good music score works *with* the visuals, not independently of them, contributing to the movie's overall moods. It can bring a scene to life, punch up lackluster or dragging sections, and squeeze extra emotion out of dramatic scenes. Lack of music at key moments can be just as important in highlighting the drama or comedy. If you want to enter your movies in festivals or shop them to potential distributors or sell them to the public, you will also need to clear the rights for all the music you use (which can be extremely expensive for popular songs and performers). If you or a friend do not compose and perform completely original scores, you should consider investing in computer music creation software and/or a royalty-free music library, perhaps with software like "SmartSound" that will automatically edit, re-arrange, and even re-orchestrate pieces to fit an exact scene length and mood you specify (or can let you do it manually). The same goes for sound effects. Either record your own (preferable) or obtain royalty-free prerecorded sound effects to use.

There is one element in movies (whether independent or studio-financed) that overrides all else. This can make people overlook some pretty horrible technical flaws, or on the contrary it can make people completely disregard the fact that a movie may have absolute technical perfection, elaborate special effects, or spectacular production values. This element is *the story*. You need to start with an interesting story and interesting characters, or the production process will be a waste of time for everyone involved (unless you're considering it merely a test run and a learning process). To make a movie you'll be proud to show to others, *first* make a movie that you would be interested in watching. Do your best to make it so that others can follow what's going on and understand it without having read the script in advance! You might want to start with ideas selected from current events (newspaper headlines), personal experiences, and/or favorite movie genres. Try to grab viewers' attention right away with a situation they will want to keep watching to find out how it is resolved. Work in clues as the story unfolds that can help viewers figure out what might happen without giving anything away. Try to resolve your plot in some way that is logical and satisfying (even if it is open-ended or a reversal of expectations). *Then* try for improving your technical proficiency and polishing your cinematic style as you gradually upgrade and enlarge your collection of equipment. Make a movie or two and see how audiences respond. As an exercise, consider re-editing and/or remaking the same short movie to see if you

can make the story work better on the screen, possibly rearranging, expanding, shortening, or completely rewriting the script at some point. Play with your editing software to see what effects it can produce that might be useful to your story without distracting from the story. Make more movies! Each will get better as you discover yourself taking things for granted that you had to struggle to accomplish in your first productions.

The biggest challenge in making a no-budget movie, especially a feature-length movie, is finding enthusiastic and dedicated cast and crew willing to rearrange their schedules and work without pay throughout the duration of your production. Some will do it just for the fun of it, others for the experience, a new movie credit, or a DVD they can show to friends and family, but others may lose interest after the novelty wears off. Be sure to express your appreciation to everyone you work with and find ways to make their experience both enjoyable and rewarding. Don't waste people's time needlessly. Prepare them for the reality that there will be long periods of waiting on locations. Be sure everyone involved realizes the necessary time commitment and that others may be depending upon them.