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1	Animation History and Evolution	YouTube (COL)	https://www.youtube.com/watch?v=x5fE6OEZMKA
2	Dimensional Animation	YouTube (COL)	https://www.youtube.com/watch?v=1JgO0SuzHKc
3	Asset Creation	YouTube (COL)	https://www.youtube.com/watch?v=kG8P8WYZkZM
4	Rigging	YouTube (COL)	https://www.youtube.com/watch?v=UFvfueYWZJM
5	2D Animation Creation	YouTube (COL)	https://www.youtube.com/watch?v=ydNNCz-h4RA
6	3D character creation	YouTube (COL)	https://www.youtube.com/watch?v=Z3KYpSc-TXY
7	texturing	YouTube (COL)	https://www.youtube.com/watch?v=siKVb6aIToE
8	Editing using Adobe Premier	YouTube (COL)	https://www.youtube.com/watch?app=desktop&v=BVpJrEWV6eo&ab_channel=CUTMOdisha

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Topic: ANIMATION

Link: <https://www.youtube.com/channel/UCy2a2NdleGSGlEd5FxyOcOA/featured>



Statistics Categories & Collections All of OASIS ▾

Home • 04. Course/Learning Mate... • Technology • Animator

Animator



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Abstract

This is a complete animation and visual effects production-ready training course aligned to National Occupational Standard (NOS) MES/ Q 0701 of Media and Entertainment Skills Council, India. The course aims to assist production of animated films and is suitable for designer, producer, editor of short industry standard animation films.

Subject

Multimedia, Information and Communication Technology (ICT), Course or Learning Material

Region

Pan-Commonwealth

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UNIT 1- Animation History and Evolution

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https://www.youtube.com/watch?v=x5fE6OEZMKA&ab_channel=CUTM

Animation History and Evolution

Introduction

Deep into the synthesis of time and space, creation of the universe and biological life forms are meant for motion and different kinds of movements. These movements through time and space are no programmes, yet can be imitated, reproduced similarly for accurate archival presentation, representation and effective communication.

Without movements there is no life. To study life means to study movements. An accurate and perfect study of movements can make us think or be capable of reproducing such movements and activities through time and space in various mediums. So far we have been in perfect control of the human race, i.e. various forms of audio-visual presentation, representation and reproduction.

To 'animate' is literally 'to give life to', etymologically derived from the Latin root "Animae" (to move). 'Animating' is moving something which can't move itself. In other words, it is a process of giving life to a non-living form.

Hence, animation is universally defined as the process of making the illusion of motion and the illusion of change by means of the rapid display of a sequence of static images that minimally differ from each other.

Since the days of cave paintings till date of virtual realism of life things have evolved in such a direction by all races irrespective of geographies.

Before diving into a multi-skill integrated course like this which would definitely give the learner an edge over other trainees and aspirants, we must study the history and evolution of animation in order to make our fundamental understanding of this integrated and ever evolving skill stronger throughout time.

This highly industry standard production-ready curriculum is developed with years of enormous efforts into its making and compilation. With an objective of making the students, intelligent skilled professional/s perfectly in sync with the rapid evolution in this virtual universe, for sure they are going to play second god.

1.1 History of Animation



Watch this introductory video on History of Animation at goo.gl/mYJqFZ



The idea of animation is far older than the films or television. The human race began painting animals on cave walls, sometimes drawing four pairs of legs to show motion 35,000 years ago.



Fig 1: Drawing in Udayagiri Caves in Vidisha (Source: Wikimedia)



Fig 2: Drawing in Khandagiri Caves in Odisha (Source: Wikimedia)

More interestingly at Konark temple, Odisha, the 24 wheels represent 24 hours. Twelve wheels show the life of Oriyas of that age in day time and the other 12 represents life after dark. If closely observed, one wheel which was showing life of a woman from sun rise to sun set is accurately maintained body volume in such a way that if we click every pose individually and flip it, we would find a key frame animation of the lady.



Fig 3: Konark Temple Wheel in Odisha (Source: Wikimedia)

UNIT – 2 - Dimensional Animation

LINK- https://www.youtube.com/watch?v=1JgO0SuzHKc&t=76s&t;ab_channel=CUTMOdisha

Like many people of my generation, my childhood consisted of watching mostly the traditional 2D within television and film, from Mickey Mouse, Dennis the Menace to Tom and Jerry and Wacky Racers. There were hours on a weekend or before/after the school day that you would spend time watching instead of doing your homework due to their classic silly playful fights and the pure brilliance of the show endlessly delivering the entertainment we love. For me, personally, I loved watching all these programmes for the stories and the comedy that is shown in these classic shows. Often trivial, silly and occasionally violent - it was all fun entertainment.



Fig 6: Tom and Jerry (Source: Flickr.com)



Fig 7: Mickey Mouse (Source: Wikimedia)

But it was also something that from an artistic point of view inspired me. There was something about the art that even as a child was the most important reason I found these cartoons so personally appealing and magical that I wanted more and more of it. It was more than just the classic comedy, laughter and sometimes violent outbursts I got out of it; it was the rich and colourful power I could feel from the quality of the classic hand-crafted image, frame by frame.

The traditional 'keys that are used in classic cartoons range from dust on the ground, if for example a car brakes or a person who is running suddenly screeches to a halt, or the ground shaking like an earthquake from the impact of someone falling. This is one of many things I feel is becoming more and more lost in CGI.

So to know these processes and skills, before we start the detailed in-depth skill lessons, an overview of the interfaces and behavioural practices with the software and some hardware gadgets is mandatory.

UI Overview, Learning The Generic Tools and Techniques

2D Classical and Tra-digital Softwares to be conversant for animation aspirants are:



Fig 13: Toon Boom Studio



Fig 14: Toon Boom Animate Pro



UNIT- 3- Asset Creation

VIDEO LINK- https://www.youtube.com/watch?v=kG8P8WYZkZM&ab_channel=CUTMOdisha

2.1.8 Transposing: Humanistic to Other Families of Characters and Vice Versa



Fig 62: *Transposing Human and Animal* (Source: Wikimedia)

Tarzan was first ever reverse transposing in animation history. However, generally most of the transposing of animal and bird characters has been transposed with humanistic expressions and actions since the early days of animating animals, birds, semi-realistic and surrealistic characters.

In Disney's *Beauty and the Beast*, *Cars* and *Planes*, even non-living objects also humanly transposed to express their characters live. Somehow this animation sensibility also inspires civic sensibility for human beings to treat their environment with compassion, decency, life value and their importance in the very existence and contribution to our lives.



Anatomical Study Model Sheet

Can give animators a better idea of the structure that exist depending on a particular aspect of the drawing.

Rough Dialogue Model Sheet

Shows various shapes of an organ that are created when the character is in motion. This one has the added benefit of showing a range of emotions.

Final Line Turn Around Model Sheet

When beginning your turnaround model sheet, it is usually easiest to start with either a forward facing view of your character that has the proportions entirely worked out; this will be the drawing that sets the standard for your character. When completed, flip this character face down on a light box (use a lighted window if you don't have a light box) and trace the outline. Flip it back around and detail in the back view, referencing the front view as you go. Once both are completed, line them up and use a ruler to map out corresponding points on their head and body. Use these to rough out a side view and three-quarter view of your character. You can do each on a separate piece of paper and Photoshop them together once you have the character fully mapped out:

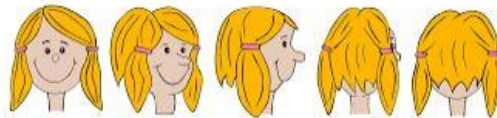
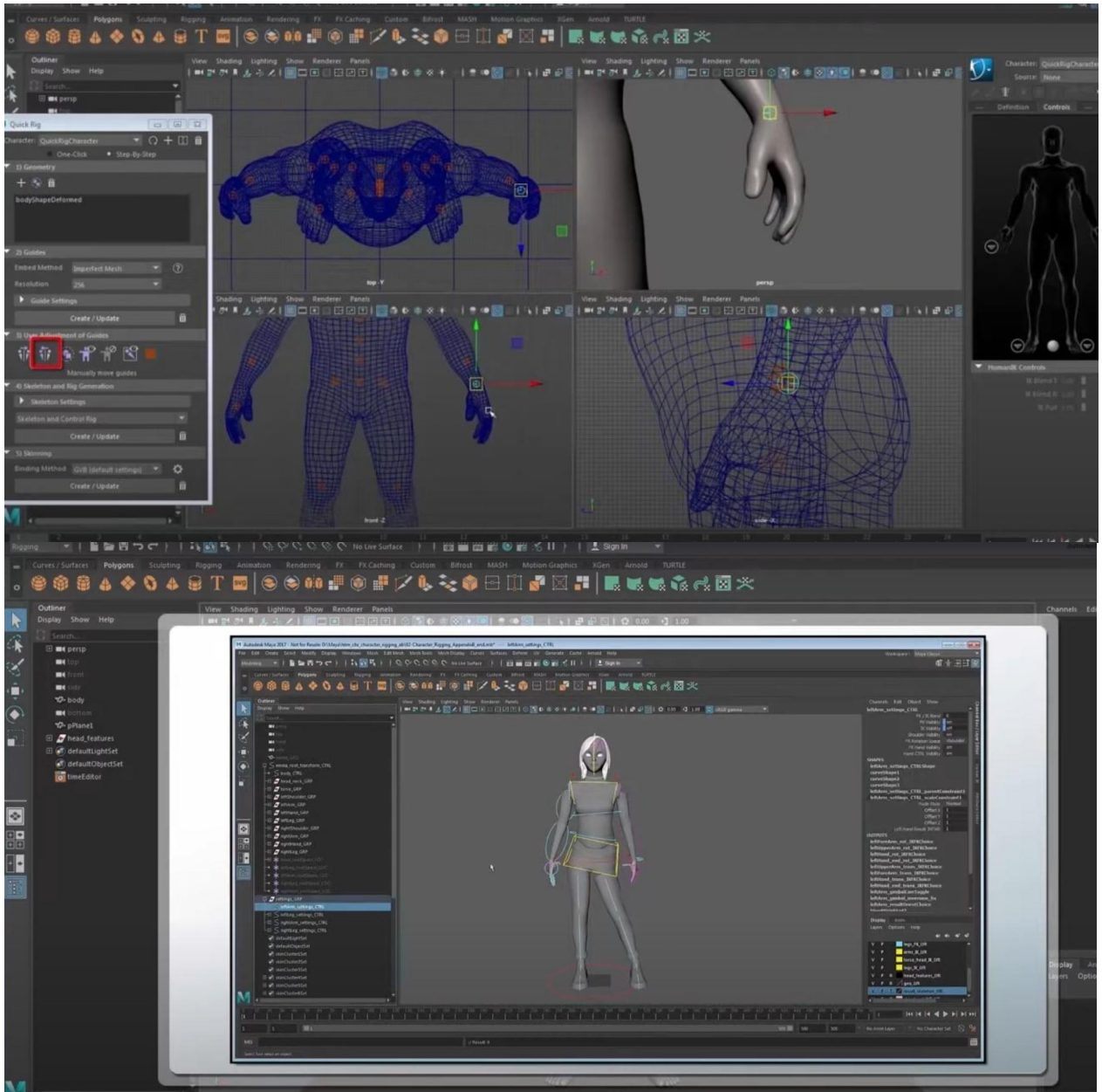


Fig 66: Turn Around Model Sheet (Source: Pixabay)

UNIT- 4 – Rigging

VIDEO LINK- <https://www.youtube.com/watch?v=UFvfueYWZJM>

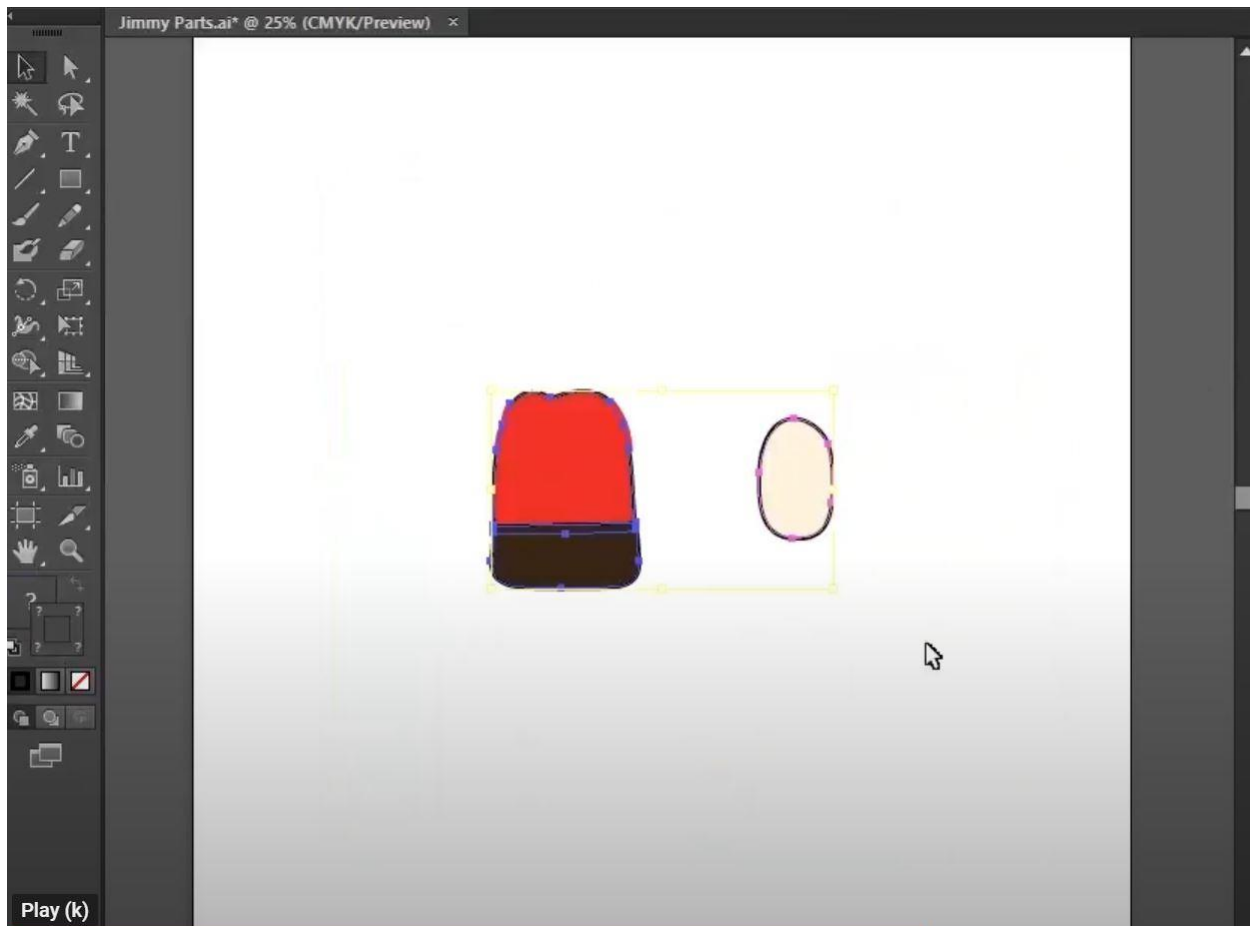
Adobe Illustrator is a great software for tracing and the final output could be exported to for rigging and animation.



UNIT 5- 2D- Animation Creation

VIDEO LINK- <https://www.youtube.com/watch?v=ydNNCz-h4RA>





UNIT 6- 3D character creation

VIDEO LINK- <https://www.youtube.com/watch?v=Z3KYpSc-TXY>

2.2.2 3D Character Creation

For 3D, we also need turn out model sheets which are converted into image planes and used in the modelling process. After completion of modelling, the assets are then moved ahead in the production pipeline for texturing, rigging and finally animation.

The popular 3D animation softwares are Autodesk Maya, 3Ds Max and Blender.

Below, Maya Interface Showing Different Panels

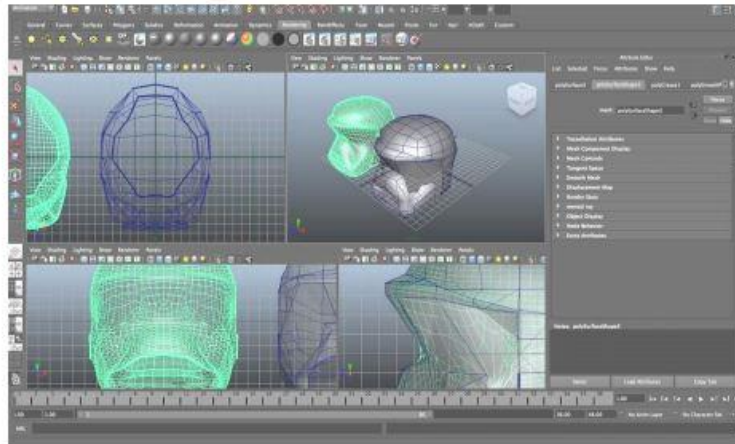


Fig 67: Maya Interface

UNIT 7- Texturing

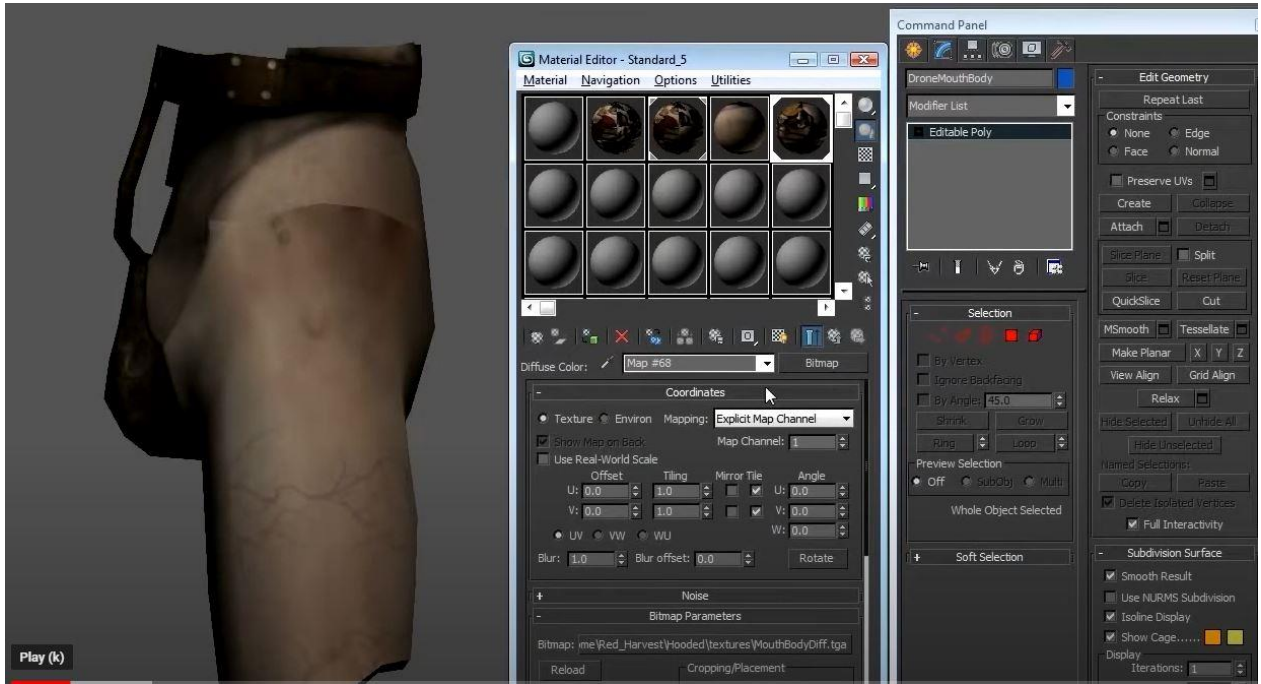
VIDEO LINK - <https://www.youtube.com/watch?v=siKVb6aIToE>

It is a method for defining high frequency detail, surface texture, or color information on a computer-generated 3D model.

Texturing can be done by applying different materials with the help of a node-based tool such as **Hypershade** in Maya or by creating maps in Photoshop and then applying it to your model.

But before you can apply a texture map, you need to unwrap the model for correct positioning of the detail and shades.

Now texture maps can be created accordingly and applied on the unwrapped model to obtain the desired results.



UNIT- 8- Editing using Adobe Premier

VIDEO LINK - https://www.youtube.com/watch?app=desktop&v=BVpJrEwV6eo&ab_channel=CUTMODisha

On its most fundamental level, film editing is the art, technique, and practice of assembling shots into a coherent sequence. A film editor must creatively work with the layers of images, story, dialogue, music, pacing, as well as the actors' performances to effectively "re-imagine" and even rewrite the film to craft a cohesive whole.

4.2.1 Practice in Editing Software, Tools and Techniques

Some Techniques

(a) Match Cut/Match Action:

Match action (or match cut) is a technique where an editor will cut from one visually similar scene to another. Typically match actions need to be planned out in advance — but when done correctly, you can create a captivating sequence by simply cutting together two similar shots.

(b) Cutting on Action

It is a technique used to create a more interesting scene. The concept is simple... when you cut in the middle of an action, it will appear less jarring and more visually interesting. This applies to just about every scene. Cut when your subject is moving and not when they complete the action and your scene will seem much more fluid.

(c) J and L Cut

J and L Cuts are an essential tool for tying two scenes together. In a nutshell, a J or L cut is an overlap of either audio or video onto the next scene. They are named for the shape they make in your editing timeline.



Fig 84: Timeline

The usual considerations of hall radius or ratios of direct to reverberant sound do not apply here since the mic is baffled. Since all hall ambience will be generated from this or other great hall impulse responses, it is not necessary to record hall reverb during the recording session. The Ambiophone must also collect horizontal frontal or proscenium ambience since this indirect sound should emerge from the Ambipole with the direct stage sound. The head shape of the Ambipole provides the Interaural Level Difference for sounds from the stage sides. Otherwise, the Ambipole, being centred in front of the home listener, would not provide this.

The Ambiophone captures both correct ILD and ITD compared to coincident microphone techniques, spaced omnis, spot mic mixing, etc. The Schoeps KFM-6 turns out to be a good match for an Ambiophone, if baffled during use.

4.8 Production Management

Project Management is a specialized science with various facets. If you break down the life cycle of any project, there are multiple stages such as initiation, implementation, completion, delivery and closure with active monitoring as a common factor across the entire process chain. Each of these stages can be extrapolated into many individual tasks and for each task a defined process or method can be created. In this way an effective system can be designed that ensures complete control over the processes and the execution of the tasks in a time bound manner.

4.8.1 Decisive Factors for Strategic Process Planning

Type of Production
Technical Complexity
Shots and Production Flow
Creative Flow
Budget, Schedule and Resources

4.8.2 Optimising the Limits in Time, Money, Resources

Time and money are important aspects in any process, filmmaking included. Budget, in general, refers to the sum of money allocated for a specific purpose. In this case it refers to the money used for film-making equipment, hiring artists, marketing/promotion and many other expenditures. **Scheduling** is the process of arranging, controlling and optimizing work and workloads in a **production** process or manufacturing process.

4.8.3 Implementation of Production Pipeline

Today, the major great studios do not follow their own set of rules in setting up and implementing a particular production pipeline used to be practised for years before the 1990s. Rather these intelligent studios upgrade themselves with the technology as well as customize their production pipeline driven by the animated tale they are producing. Production houses like Pixar sets up its production pipeline as per the demand of the script and the timeline set to release the show.

Though these studios follow the fundamental process of traditional pre-production like drawing and sketching but the technology enables these artists further to produce these great artworks with perfection digitally drawing over the screen with the help of digi-pen tablets. This actually accelerates the artists' work with perfection in quality production. With the blade server networked systems, any resource can access any data at any point of time from any particular place. Most of these places of work become interchangeable. This also gives a greater possibility for co-production with many studios across the continents. This gives access to cross-animation-cultural practices for the professionals to be conversant with many kinds of pipeline and work process. Production managers and show directors can monitor and



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