

WHITE PAPER

The background of the entire page is a complex, abstract composition of various shades of blue. It features a mix of geometric patterns, including grids, lines, and shapes that resemble architectural structures or digital data. The overall effect is a sense of depth and technological sophistication.

Tradigital Workflow



Toon Boom Animation Inc.

White Paper: Tradigital Workflow

This paper presents an overview of the benefits of setting the correct workflow for a tradigital animation production.

In this document, you will find information about the workflow and tasks of a tradigital animation production, how to breakdown and organize your team, how many people you need, as well as how long each task generally takes.

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Integrating Harmony into Your Tradigital Workflow

Many steps in the animation workflow can be achieved within the Harmony Solution with its optimized tools to help animators, designers, colourists, composers, and so on. But how do we apply this in a production context? This chapter presents different ways to integrate Harmony to your Tradigital animation workflow.

In this chapter, you will learn how to organize your tasks and create your particular pipeline. Depending on the amount of people working on a team and the animation technique used, the tasks will be distributed differently. Some users will do three of them as in another context a user will do only half of one.

This chapter was divided in two categories covering the different user types and studio sizes, workflow suggestion, team organization and the system requirements necessary to your production:

- Integration for a Small or Medium Studio on page 2
(from 2 to 35 users)
- Integration for a Large Studio on page 8
(more than 35 users)

Each of these sections offers workflow examples, suggestions on how to distribute these tasks among the team and other tips to direct your work more efficiently.

See also the following White Papers:

- Production Considerations
- Harmony and the Art Director
- Harmony and your IT Department
- Cut-out Workflow
- Traditional Workflow

Integration for a Small or Medium Studio

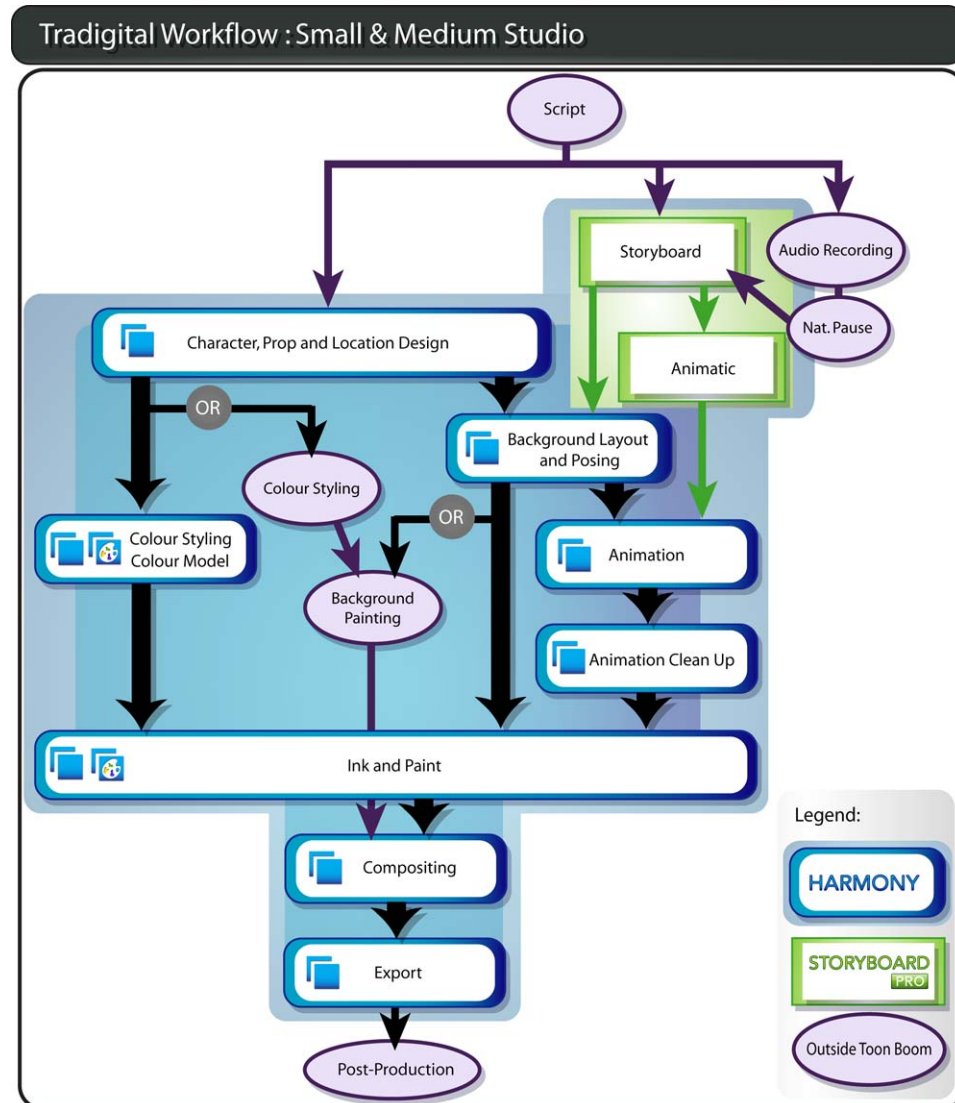
Small and medium studios are composed of 2 to about 35 users. Depending on the size of the team, the tasks will be spread a bit differently among the users.

In a studio, a very important point is the structure and organization. The people working on the project must be able to communicate and maintain a uniform style over the entire project. Harmony's integrated pipeline and optimized tools can be used to create a fast, high quality and structured animation by a small or medium-sized team.

Small and medium teams have a few different ways to structure their pipeline. This chapter presents the most popular workflow examples. We also provide the number of people requested for each workflow and the quotas for the average production. These amounts can vary according to the project quality, complexity and schedule. These numbers do not include system administrators, supervisors, producers and directors.

Workflow Suggestion

First consider the workflow example and analyze the steps' ordering and organization.



A Tradigital production is meant to use a very small amount of paper, or to eliminate it altogether. Harmony allows you to keep everything in the same solution, so that the information can be communicated or organized more easily between team members. In this workflow example, we tried to eliminate a maximum number of Traditional steps and keep all of the steps in an integrated pipeline.

Other than the script, audio recording and post-production, all of the tasks are accomplished within Toon Boom's softwares.

Note that the storyboard is done with the Toon Boom Storyboard Pro software. It has the advantage of being totally digital and compatible with the Harmony Solution. It creates a layout directly from the storyboard to animate the project's scenes and the scene lengths automatically. Animatic and sounds coming from the storyboard are instantaneously incorporated in every scene. There is no time lost in scanning the whole board and adapting it to the project.

Starting

Approval and Tracking Manager

Throughout the production, the manager will have to rely on an approval and tracking system. Using Toon Boom Manager, the manager will easily keep track of the recommended production trackings which are the approval processes for the Design and Animation related steps:

Design Tasks Approval Steps:

- **Entry** = creates a blank scene that can be named and saved in the correct location on the Database that comes with Harmony.
- **Design** = when a scene is being worked on it will be at this level.
- **Design Supervisor** = when a design is finished it will be advanced here for the Supervisor's approval.
- **Design Director** = if the Supervisor approves of the design, it will be advanced to the Director for his approval.
- **Colour Styling** = level where final palettes will be created and final colours will be chosen.
- **Director Colour** = level where the Director will approve of the colours (*Optional level. This can be the place where colours are final and approved).
- **Art Direct** = this is a level where the Art Director can make adjustments to the palettes.
- **Director Colour Final** = Art Directed palette adjustments approved (*Optional level. This can be done at the Colour Styling level).
- **Ready for Animation** = the design is ready for Animators to use in production.

Animation Tasks Approval Steps:

- **Scene Building** = using the Export to Harmony command from Storyboard Pro, scenes are built to the correct length with the sound and a leica (animatic) for each scene in a format which can be imported directly in Toon Boom Server.
(Note: Editing will have to create separate audio and leica files that will be used for this process.)
- **Scene Set-up** = Set-up people will build the libraries and populate the Networks in preparation for animation.
- **Animation** = when scenes are being animated will be on this level.
- **Animation Director** = level where the Animation Director will look at the scenes and either send it to the Director, or send it back to Animation for revisions.
- **Director** = level where the Director will look at scenes and advance it to composite, or send it back for revisions.
- **Composite** = level where Editing will take the frames and import them into the editing software as a frame sequence and render the final scene .mov file.
- **Complete** = scene is placed here after everything is finished.
- **Retake** = after the final colour has been cut together final adjustments to the Animation may be required. Scenes needing revision are placed here, and will be advanced from here to Animation Director and follow the same approvals steps from there to Complete.

The Script

Any project starts with a script, either from the studio itself or acquired from the client that the project is being created for.

Following the script, the design team will start designing the character, props and locations and the storyboard artist will start building the storyboard. Again, this process is similar to any other workflow.

Pre-Production Variants

Designs

We recommend that you design the characters, props and locations directly within Harmony Solution to keep everything digital and save time. You can also design them on paper and scan them in, but this requires a bit more work and handling.

On a small project, there is generally one person in charge of the character, prop and location designs. If there is a lot of work to be accomplished, the work can be divided between two people, one dealing with the characters and props and the other one taking care of the locations.

- Small studio:
 - ⇒ 1 character, prop and location designer
- Medium studio:
 - ⇒ 1 character and prop designer
 - ⇒ 1 location designer

Dialogue and Nat Pause

The dialogue is also recorded from the script. This step is often recorded out of the studio and handled by one person. If there is dialogue involved in the project, the final version will have to be recorded in time to import it in the project before the animation. This allows the animator to do the sound breakdown and animate the mouths and expressions, as well as the storyboard if required.

Nat Pause is used by the Storyboard Artist to hear what the characters are saying and how it is said so they could draw the correct expression. It is important to minimize the revision to the visuals. You don't want an angry expression when the character sounds happy.

- Small or medium studio:
 - ⇒ 1 person in charge of the audio recording

Storyboard

The storyboard can be started in tandem with the design and the audio recording, but some studios will wait until the designs and the audio recording are finalized.

In a small studio, there will generally be one or two storyboard artists. In a medium studio, there are normally two artists, but there may be up to three.



TIP: *A storyboard artist normally has between three to four weeks to create a 22-minute episode. To determine how many storyboard artists you will need, calculate the amount of time allocated for the project to be completed. On average, a storyboard artist will do between three and four storyboards per series.*

- Small studio:
 - ⇒ 1 or 2 storyboard artists
- Medium studio:
 - ⇒ 2 to 3 storyboard artists

Animatic

The animatic, also known as leica, is made from the storyboard. The storyboard must be completed, approved and locked for the animatic to be created. There will be a person in charge of the animatic to maintain consistency over the whole production. A second person can help if you are rushed, but it is generally handled by one person.

Note that if the storyboard is done on paper, someone will have to scan the storyboard and prepare it for the animatic. In a small team, the animatic person can take care of the scan, or someone can be assigned specifically for that task if you have a larger team.

- Small studio:
 - ⇒ 1 animatic person (also in charge of the scan)
- Medium studio:
 - ⇒ 1 animatic person
 - ⇒ 1 storyboard scan person* (could be the animatic person)

**If the storyboard was created on paper.*

Colour Styling

The colour styling can be done before or after the animation. It does not really have an impact on the pipeline. This step can be done on paper, directly in Harmony or in external software. You can save a lot of time by doing it in Harmony since you can create palettes and colour models at the same time.

If the backgrounds are painted in an external software, the colour styling of the locations (key backgrounds) should also be done in this same external software.

For a small or medium-sized team, one colour stylist is usually enough, especially if this is done within Harmony Solution.

- Small and medium studios:
 - ⇒ 1 colour stylist (can also be a colourist or compositor)

Production

The production part of Tradigital animation can be completely done within Harmony. This includes the animation, the clean up, the inking and painting, the background painting, compositing, etc.

Background Layout and Posing

For the Tradigital production, the layout and posing step is very important as it helps to clearly communicate the storyboard information to the animators.

In a small studio, the background layout and the posing will be handled by the same person. In a medium studio, the background layouts will be done by one person or a team and the posing by another person or team. For the small studio with a limited amount of resources, the storyboard artist or the animator will create the layout and posing.

The layout and posing can be done in Toon Boom Harmony Stage, but it is recommended that you use Toon Boom Storyboard Pro which has tools optimized for this.



TIP: *To produce a full 22- minute episode in one week, about 300 scenes (150 to 160 original backgrounds, the rest is reused), requires four to five layout artists. It takes about the same number of posing artists to create the posing for one episode per week.*

- Small studio:
 - ⇒ 1 to 2 layout and posing artists (storyboard artist or animator)
- Medium studio:
 - ⇒ 2 to 3 background layout artists
 - ⇒ 1 to 2 posing artists (can be the background artists)

Background Painting

The backgrounds can be painted in Harmony or in an external software. In a small team, one person can handle the background painting. In a medium team, there will probably be two people painting the backgrounds.

- Small studio:
 - ⇒ 1 background colourist
- Medium studio:
 - ⇒ 2 background colourists

Animation and Dialogue

In a Tradigital animation production, the animation and clean up are digitally assisted by the layout and posing. The animation is one of the longest steps in a production. The core of the team should be composed of animators and clean up artists.

For a small team, there will be one, two or three animators that will handle the rough animation, the in-betweens and the clean up. For a medium team, the rough animation and the in-betweens will be done by two, three or four animators who will be assisted by clean up artists to trace their animation.

If there are dialogues to be animated, the animator will import the sound files in the project and use the sound scrubbing or the automated lip sync detection features to breakdown the sound and establish which mouths to use and animate.

There is no need to do a traditional sound-break down.



TIP: *The animation quotas depend on the requested animation quality. An animator can produce up to 10 to 15 seconds of animation per week for an average project. For a lower complexity of animation, they can produce up to 13 to 18 seconds each week. For a very high animation quality, the productivity is around five to ten seconds per week.*

- Small studio:
 - ⇒ 1 to 3 animators (rough, in-betweens, clean)
- Medium studio:
 - ⇒ 1 to 5 animators (rough, in-betweens)
 - ⇒ 2 to 5 clean up artists

Inking, Painting and Compositing

The ink and paint process is probably the longest digital step. It requires you to clean all of the drawings, ink the lines and fill all of the colours on all drawings. If there are a lot of details and lines to be inked, the colour step will take longer.



TIP: *We recommend a ratio of 3 to 4 colourists per compositor, but this may vary depending on the size of the team.*
The rendering step is generally handled by the compositor.



TIP: *About 5 compositors are required to composite the full 22 minutes of an average project per week. A colourist can paint about four to five hundred drawings per day.*

- Small studio:
 - ⇒ 1 colourist/compositor
- Medium studio:
 - ⇒ 1 to 2 colourists
 - ⇒ 1 compositor (helping the colourists)

Post-Production

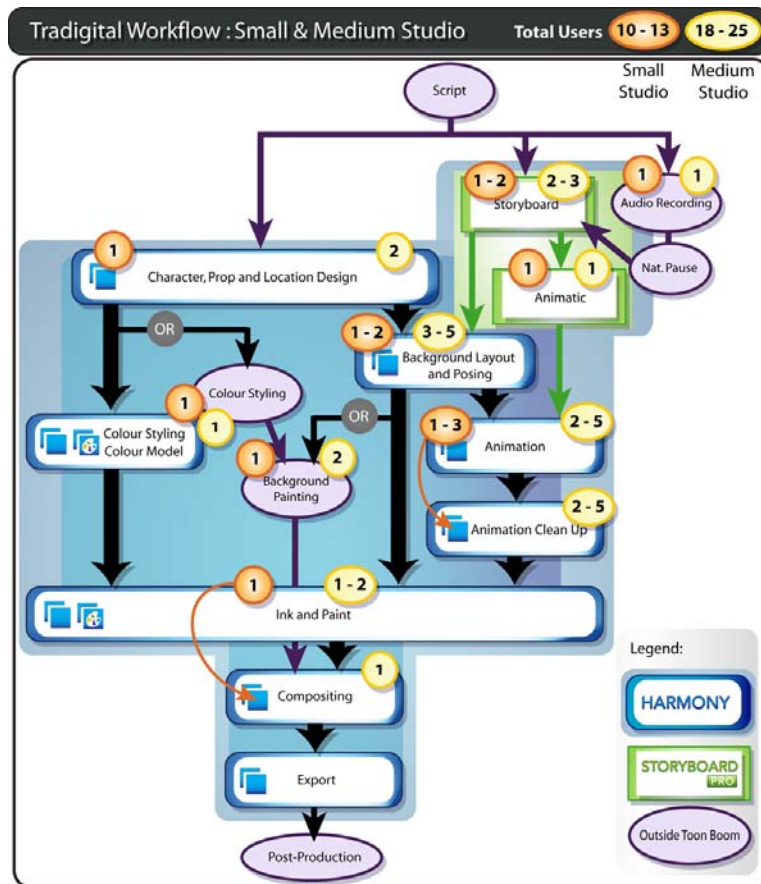
When all of the scenes are rendered out, the user will assemble them in an external application and add the sound to the project. The final effects and filter will be added. The final step is to render out to the master and distribute it, unless there is dubbing to be done.

On a small or medium team, a single person is sufficient for the final editing. Very often, the final transfer will be done by an external post-production company.

- Small or medium studio:
 - ⇒ 1 final editing person

Project Requirements

To create a Tradigital project, a small or medium studio needs:



This numbered chart is based on information collected amongst established studios.

Integration for a Large Studio

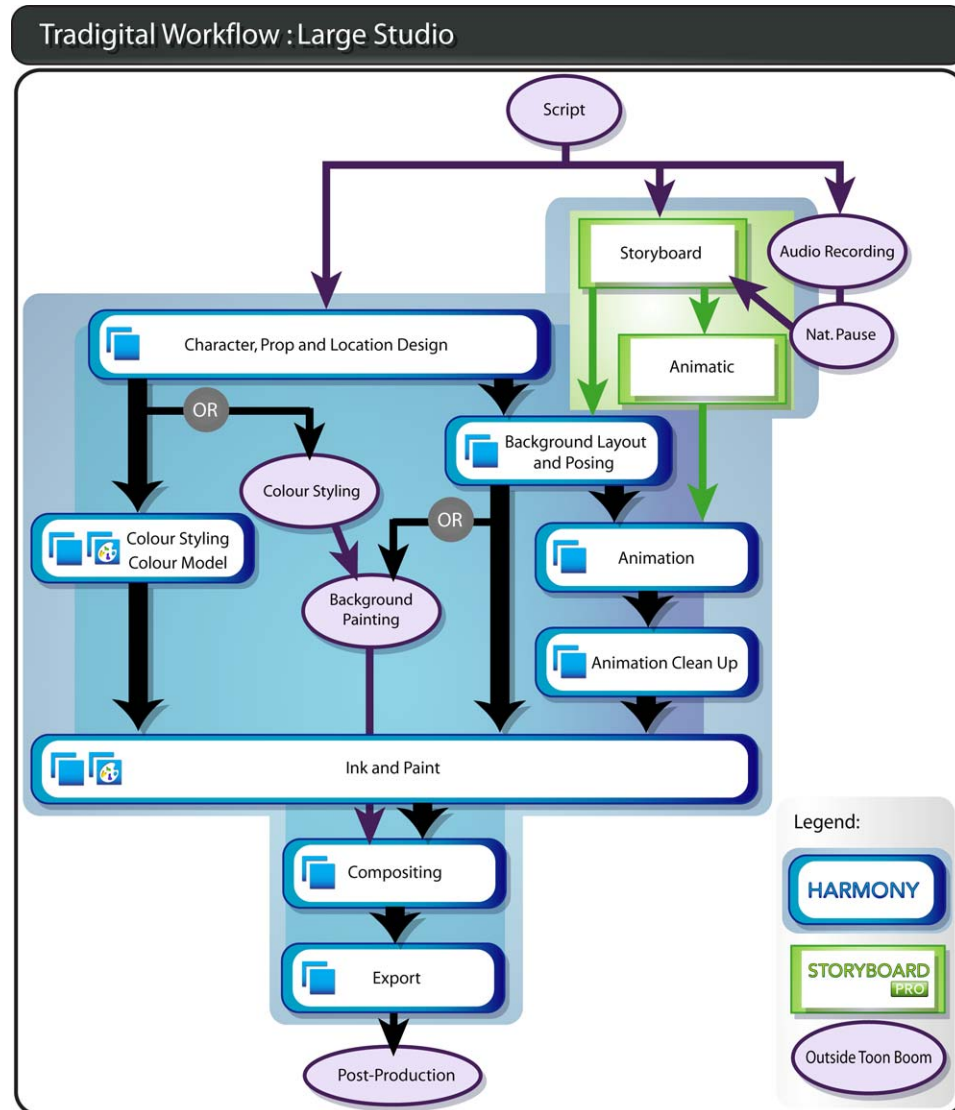
Large studios are composed of more than 35 users. Depending on the size of the team, the tasks will be spread a bit differently among the users.

In a studio, a very important point is the structure and organization. The people working on the project must be able to communicate and maintain a uniform style over the entire project. Harmony's integrated pipeline and optimized tools can be used to create a fast, high quality and structured animation by a large team.

A large team has many different ways to structure its pipeline. This chapter presents the most popular workflow examples. We also provide the number of people requests for each workflow and quotas for the average project. These amounts can vary according to the project quality, complexity and schedule. These numbers do not include system administrators, supervisors, producers and directors.

Workflow Suggestion

First consider the workflow example and analyze the steps' ordering and organization.



A Tradigital production is meant to use a very small amount of paper or to eliminate it altogether. Harmony allows you to keep everything in the same software, so that the information can be communicated or organized more easily between team members. In this workflow example, we tried to eliminate a maximum number of Traditional steps and keep all of the steps in an integrated pipeline.

Other than the script, audio recording and post-production, all of the tasks are accomplished within Toon Boom's softwares.

Note that the storyboard is done with the Toon Boom Storyboard Pro software. It has the advantage of being totally digital and compatible with the Harmony Solution. It creates a layout directly from the storyboard to animate the project's scenes and the scene lengths automatically. Animatic and sounds coming from the storyboard are instantaneously incorporated in every scene. There is no time lost in scanning the whole board and adapting it to the project.

Starting

Approval and Tracking Manager

Throughout the production, the manager will have to rely on an approval and tracking system. Using Toon Boom Manager, the manager will easily keep track of the recommended production trackings which are the approval processes for the Design and Animation related steps:

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- **Design Director** = if the Supervisor approves of the design, it will be advanced to the Director for his approval.
- **Colour Styling** = level where final palettes will be created and final colours will be chosen.
- **Director Colour** = level where the Director will approve of the colours (*Optional level. This can be the place where colours are final and approved).
- **Art Direct** = this is a level where the Art Director can make adjustments to the palettes.
- **Director Colour Final** = Art Directed palette adjustments approved (*Optional level. This can be done at the Colour Styling level).
- **Ready for Animation** = the design is ready for Animators to use in production.

Animation Tasks Approval Steps:

- **Scene Building** = using the Export to Harmony command from Storyboard Pro, scenes are built to the correct length with the sound and a leica (animatic) for each scene in a format which can be imported directly in Toon Boom Server.
(Note: Editing will have to create separate audio and leica files that will be used for this process.)
- **Scene Set-up** = Set-up people will build the libraries and populate the Networks in preparation for animation.
- **Animation** = when scenes are being animated will be on this level.
- **Animation Director** = level where the Animation Director will look at the scenes and either send it to the Director, or send it back to Animation for revisions.
- **Director** = level where the Director will look at scenes and advance it to composite, or send it back for revisions.
- **Composite** = level where Editing will take the frames and import them into the editing software as a frame sequence and render the final scene .mov file.
- **Complete** = scene is placed here after everything is finished.
- **Retake** = after the final colour has been cut together final adjustments to the Animation may be required. Scenes needing revision are placed here, and will be advanced from here to Animation Director and follow the same approvals steps from there to Complete.

The Script

Every project starts with a script, either from the studio itself or acquired from the client that the project is being created for.

Following the script, the designing team will start designing the characters, props and locations and the storyboard artist will start working on the storyboard. Again, this process is similar to any workflow.

Pre-Production Variants

Designs

We recommend that you design the characters, props and locations directly in Toon Boom Harmony Stage to keep everything digital and save time. You can also design them on paper and scan in after, but this requires a bit more work and handling.

The number of designers needed will depend on the project content and the time allocated to the pre-production. A large studio will generally have one or two designers for the characters, one for the props and one or two more for the locations.

- Large studio:
 - ⇒ 1 to 2 character designers
 - ⇒ 1 prop designer
 - ⇒ 1 to two location designers

Dialogue and Nat Pause

The dialogue is also recorded from the script. This step is often recorded out of the studio and handled by one person. If there is dialogue involved in the project, the final version will have to be recorded soon enough to import it in the project before animation. This allows the animator to do the sound breakdown and animate the mouths and expressions and, depending on the planning, the storyboard.

Nat Pause is used by the storyboard artist to hear what the characters are saying and how it is said so they could draw the correct expression. It is important to minimize the revision to the visuals. You don't want an angry expression when the character sounds happy.

- Large studio:
 - ⇒ 1 person in charge of the audio recording

Storyboard

The storyboard can be started in tandem with the design and the audio recording, but some studios will wait until the designs and the audio recording are finalized.

In a large studio, there will generally be four to six storyboard artists per production. Again, this amount can vary. If the storyboards are quite simple and fast to create, a studio can handle the work with only four storyboard artists.



TIP: A storyboard artist normally has between three to four weeks to create a 22- minute episode. To know how many storyboard artists you need, calculate the amount of time allocated for the project to be completed. On average, a storyboard artist will do between three and four storyboards per series.

- Large studio:
 - ⇒ 4 to 6 storyboard artists

Animatic

The animatic, also known as leica, is made from the storyboard. The storyboard must be completed, approved and locked for the animatic to be created. There will be one person in charge of the animatic to maintain the consistency over the whole production. More people can help if you are rushed, but it is generally handled by one person. A studio can have more than one animatic person per production depending on the delays.

Note that if the storyboard is done on paper, someone will have to scan the storyboard and prepare it for the animatic. In a small team, the animatic person can take care of the scan, or someone can be assigned specifically to that task if you have a larger team.

If the storyboard is created with Toon Boom Storyboard Pro, the storyboard artist can easily create the animatic and set the intended timing.

- studio:
 - ⇒ 1 to 3 animatic people
 - ⇒ 1 storyboard scan person* (could also be the animatic person)

**If the storyboard was created on paper.*

Colour Styling

The colour styling can be done before or after the animation. It does not really have an impact on the pipeline. This step can be done on paper, directly in Harmony or in external software. You can save a lot of time by doing it in Toon Boom Harmony Stage since you can create palettes and colour models at the same time.

If the backgrounds are painted in an external software, the colour styling of the locations (key backgrounds) should be done in this same external software.

For a studio, two colour stylists are often enough.

- studio:
 - ⇒ 2 colour stylists

Production

The production part of Tradigital animation can be completely done within Harmony. This includes the animation, the clean up, the inking and painting, the background painting, compositing, etc.

Background Layout and Posing

For the Tradigital production, the layout and posing step is very important as it helps to clearly communicate the storyboard information to the animators.

In a studio, the layout and posing tasks will usually be divided between two teams. An average project can be handled by four to six background layout artists and four to six posing artists. If the backgrounds are very complex and detailed, the number of people will obviously increase.

The layout and posing can be done in Toon Boom Harmony Stage, but it is recommended that you use Toon Boom Storyboard Pro which has optimized tools for this.



TIP: *To produce a full twenty-two minutes episode in one week, about 300 scenes (150 to 160 original backgrounds, the rest is reused), requires four to five layout artists. It takes about the same number of posing artists to create the posing for one episode per week.*

- studio:
 - ⇒ 4 to 6 background layout artists
 - ⇒ 4 to 6 posing artists (can be the background artists)

Background Painting

The backgrounds can be painted in Harmony or in an external software. For a large project, the background colourist team uses four to five people per production.

- studio:
 - ⇒ 4 to 5 background colourists

Animation

In a Tradigital animation production, the animation and clean up are digitally assisted by the layout and posing. The animation is one of the longest steps in a production. The core of the team should be composed of animators and clean up artists.

The number of animators in a studio can vary greatly, especially if the studio is working on many projects at the same time. The average studio will have between fifteen to twenty animators per production. A studio will often divide the animation between animators and one to fifteen assistant animators: the animators will animate the key and break-down drawings and the assistants will animate the in-betweens. There will be as many or more clean up artists to trace the animations as this step can take even longer than the animation itself. Some studios will combine the assistants and clean up artists on one team.

If there is dialogue to be animated, the animator will import the sound files in the project and use the sound scrubbing or the automated lip sync detection features to breakdown the sound and establish which mouths to use and animate.

There is no need to do a traditional sound-break down.



TIP: *The animation quotas depend on the requested animation quality. An animator can produce up to ten to fifteen seconds of animation per week for a project of medium complexity. For a less complex animation, they can produce*

up to thirteen to eighteen seconds each week. For a very high animation quality, the productivity is around five to ten seconds per week.

- studio:
 - ⇒ 15 to 20 animators
 - ⇒ 10 to 15 assistant animators
 - ⇒ 15 to 20 clean up artists

Inking, Painting and Compositing

The ink and paint process is probably the longest digital step. It requires you to clean all of the drawings, ink the lines and fill all of the colours on all drawings. If there are a lot of details and lines to be inked, the colour step will take longer.



TIP: *We recommend a ratio of two to three colourists per compositor.*

For a large series, there will generally be four to five compositors and eight to ten colourists. The rendering step is generally handled by the compositor.



TIP: *About five compositors are required to composite the full 22 minutes of an average project per week. A colourist can paint about four to five hundred drawings per day.*

- studio:
 - ⇒ 8 to 10 colourists
 - ⇒ 4 to 5 compositors

Post-Production

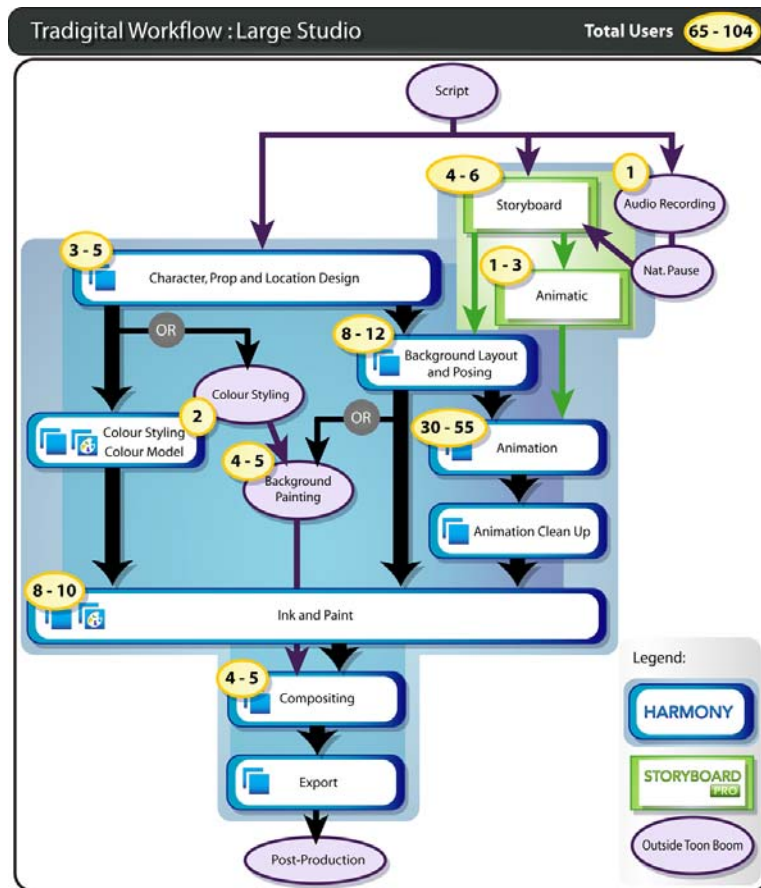
When all of the scenes are rendered out, the user will assemble them in an external application and add the sound to the project. The final effects and filter will be added. The final step is to render out to the master and distribute it, unless there is dubbing to be done.

The final editing will be generally done by one person to keep the flow consistent over the whole episode or movie. The final transfer is often done by an external post-production company.

- Large studio:
 - ⇒ 1 final editing person

Project Requirements

To create a Tradigital project, an individual user needs:



This numbered chart is based on information collected amongst established studios.