Information Communication Technology for the Studio at Copenhagen Business School

The Studio at CBS is leading the charge of educating business leaders in a studio classroom.

This document describes our recommendations for technologies that can enhance the education options at the Studio.

Acknowledgements
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WPI

CBS

CBP NETWORK
Overview of the Proposal

This document presents the 21 information communication technologies (ICTs) that we propose to be implemented in the Studio at Copenhagen Business School. This proposal is organized by color-coded chapters. The first chapter is a list of the top five technologies that would benefit the Studio, and the following chapters are ‘technological opportunities’, or specific areas in the Studio that can be supplemented by technology. Each technological opportunity chapter contains one or two ICT solutions that address it. The figure below describes the content of the chapter pages, and the next page describes the content of the ICT solution pages.
## Overview of the Proposal

### ICT Solution Name

**SketchUp**

### Detailed information about the ICT Solution

**Pros:**
- Can help students visualize ideas in a digital 3D space
- Able to export files to a 3D printer
- Has intuitive commands for a 3D modeling software

**Cons:**
- 3D modeling software typically has a learning curve

**Price:**
- Free for basic version
- $210/year per user for Pro

**Reviews:** 5 out of 5

**Website:** [http://www.sketchup.com/](http://www.sketchup.com/)

**Description:**
SketchUp is a simple modeling software that streamlines the process of creating 3D models on a computer. One can create 2D drawings or import shapes, then drag them into a 3D shape. There is also a large database of models that can be imported into the program, and the models can be sent to a 3D printer to create a physical model. It is a useful tool to visualize one's ideas easily.

### ICT Solution statistics

- [Image of the ICT Solution](image)

### A list of Pros for the ICT Solution

- Can help students visualize ideas in a digital 3D space
- Able to export files to a 3D printer
- Has intuitive commands for a 3D modeling software

### A list of Cons for the ICT Solution

- 3D modeling software typically has a learning curve

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*Note: The table and diagram are placeholders and should be replaced with actual content.*
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Top Five Overall

These five technologies address many of the needs of the Studio at CBS. The technologies are ranked based on a combination of their effectiveness and how many of the previous opportunities (3D Visualization, Accessible Sound System, etc.) it addresses.

#1: iPad Retina
#2: Google Drive
#3: Pirate 3D Buccaneer
#4: eBeam Engage
#5: CAVE System
iPad Retina

Pros:
• The familiar interface means most students know how to use this device already
• Many stores are able to fix apple devices and answer questions
• The App Store makes this device incredibly flexible
• Little to no difficulty in implementation

Cons:
• Relatively expensive if one was to buy more than one iPad

Information:
• With access to Apple's App Store, the user can download apps that facilitate a variety of activities (drawing, video editing, music creation, etc.)
• Uses iOS software, which is familiar to many students

Price: 2,159 dkk
Reviews: 4.5 out of 5

Website:

Addresses: Communication, Data Collection, Data Sharing, Interactive Interfaces, Media Manipulation, Presentation Display, and Sound Studio Equipment

The iPad Retina is a commonly used tablet computer that can enable many different classroom activities. It can download millions of applications, many of which are free. It can be connected to TVs or projectors, meaning students can work on an iPad, then present their work to the class, and easily give a presentation.
Google Docs

Pros:
• More storage than Dropbox
• Offers live collaboration on files

Cons:
• Can behave weird when some users aren’t logged in with a Google Address

Information:
• Free storage of up to 15GB of files
• Collaborate live with other users
• Share files and folders
• Upload and download documents

Price: Free
Reviews: 4.5 out of 5
Website: drive.google.com
Addresses: Data Collection, Data Sharing

The user can create or upload files and folders to his or her Google account. The user is also able to share with other users by clicking “Share” and entering their emails. The documents are then editable in real time.
Pirate3D Buccaneer

Pros:
- SmartObjects works on iOS, Android, Mac, PC, and Linux
- Claimed to have very few jams due to a patented nozzle that allows for even head distribution
- The wireless and smartphone app features make this device very flexible

Cons:
- Any 3D model software will have some learning curve
- For full intended use, it must be connected to Ethernet or Wi-Fi
- No user reviews

Information:
- Comes with 3D model software (SmartObjects) to design objects and send wirelessly to the printer via Wi-Fi
- Can also print files from other 3D modeling software
- Overall Size: 25.5cm x 25.5cm x 40cm
- Build Volume: 14.5cm x 12.5cm x 15cm
- Layer resolution: 85 microns
- Available in June 2014

Price: 2.681 dkk

Reviews: None (available in June 2014)

Website: http://pirate3d.com

Addresses: Digital 3D Visualization, Physical 3D Visualization

This 3D printer allows the user to design a model in its multiplatform (PC and Mac, iOS and Android) app called SmartObjects, then send the model wirelessly to the printer over Wi-Fi. The stainless steel design and small size makes it fitting aesthetically for the Studio.
# eBeam Engage

**Pros:**
- All of the features make this device very flexible
- Not intrusive to whiteboards
- Can enhance presentations
- Easy to implement (it is magnetic, or it can be mounted by a bracket)
- Has an active tech support

**Cons:**
- Requires knowledge on how to use it (but it comes with a guidebook)

**Information:**
- Has a large quantity of features and applications at the user’s disposal
- When paired with a projector, the white board becomes an interactive screen
- By itself, it can capture activities performed on the whiteboard

**Price:** 5.390 dkk

**Reviews:** 4.5 out of 5

**Website:**
http://www.ebeam.com/education/ebeam-engage/overview.html

**Addresses:** Accessible Sound System, Interactive Interfaces, Presentation Display, Recording/Class Capture

The eBeam Engage is a magnetic receiver that one can place on the side of a whiteboard, then plug into a computer. Pairing the eBeam Engage with a projector allows the whiteboard to become an interactive presentation tool. It also includes a remote control with a full keyboard, touch pad, and page scrolling buttons, for manual, physical control. Other features include a speaker to play audio from a computer or music playing devices, a microphone to record presentations, and a scroll knob to navigate presentations.
### CAVE System

#### Pros:
- Users are commonly blown away by this technology
- Brings virtual reality to a new level

#### Cons:
- Prohibitively expensive
- Long implementation process
- Requires extremely high-end computer hardware
- It can be invasive when it is not in use
- Requires calibration and training to use

#### Information:
- The manufacturer can design a unique setup to suit the needs of the individual customer
- It is used for a variety of purposes (data analysis, gaming, presenting)

#### Price:
- Nearly 5,395,000 dkk for a low end version, but varies dramatically depending upon the setup

#### Reviews:
- 5 out of 5

#### Website:

#### Addresses:
- Digital 3D Visualization, Interactive Interfaces, Presentation Display

This system aims to immerse the user within a virtual space. It puts the user in the center of a number of walls with projected displays, and calibrates to the user’s head so he or she appears to be in the middle of a virtual environment. The CAVE system tracks the user’s motion, allowing him or her to interact with the space.
3D Visualization - Digital

Digital 3D visualization focuses on software which creates imagery in which textures, lighting, and camera angles can be applied to generate a realistic three-dimensional image. It allows students to easily conceptualize complex 3D designs.

SketchUp
SketchUp

Pros:
• Can help students visualize ideas in a digital 3D space
• Able to export files to a 3D printer
• Has intuitive commands for a 3D modeling software

Cons:
• 3D modeling software typically has a learning curve

Information:
• Only requires students to download and install it
• The user interface is straightforward and intuitive
• Available for both PC and Mac

Price:
Free for basic version
210 dkk per laptop per year for Pro

Reviews: 5 out of 5

Website:
http://www.sketchup.com/

SketchUp is a simple modeling software that streamlines the process of creating 3D models on a computer. One can create 2D drawings or import shapes, then drag them into a 3D shape. There is also a large database of models that can be imported into the program, and the models can be sent to a 3D printer to create a physical model. It is a useful tool to visualize one's ideas easily.
3D Visualization - Physical

Similar to digital 3D visualization, physical 3D visualization can be used to help in visual learning. It allows for the creation of models and objects that are frequently used in a studio environment. Physical 3D visualization can create a variety of challenging objects in which students would be unable to create with their hands.

Pirate 3D Buccaneer  Cubify Cube 3
Pirate3D Buccaneer

Pros:
• SmartObjects works on iOS, Android, Mac, PC, and Linux
• Claimed to have very few jams due to a patented nozzle that allows for even head distribution
• The wireless and smartphone app features make this device very flexible

Cons:
• Any 3D model software will have some learning curve
• For full intended use, it must be connected to Ethernet or Wi-Fi
• No user reviews

Information:
• Comes with 3D model software (SmartObjects) to design objects and send wirelessly to the printer via Wi-Fi
• Can also print files from other 3D modeling software
• Overall Size: 25.5cm x 25.5cm x 40cm
• Build Volume: 14.5cm x 12.5cm x 15cm
• Layer resolution: 85 microns
• Available in June 2014

Price: 2.681 dkk
Reviews: None (available in June 2014)
Website: http://pirate3d.com

This 3D printer allows the user to design a model in its multiplatform (PC and Mac, iOS and Android) app called SmartObjects, then send the model wirelessly to the printer over Wi-Fi. The stainless steel design and small size makes it a fitting aesthetic for the Studio.
Cubify Cube 3

Pros:
• The user can print models without having to connect his or her computer
• Manufacturers claim that it is easier to change the plastic filament than it is to change ink cartridges in a standard printer

Cons:
• Currently no user reviews
• Relatively high price
• Models from the company’s database also have to be purchased

Information:
• Claims to print twice as fast as competitors
• Build Volume: 15cm all dimensions
• Overall Size: 34cm x 34cm x 28cm
• Available in 2nd quarter of 2014
• Uses recyclable ABS and compostable PLA plastic

Price: 5.395 dkk
Reviews: None (not available yet)
Website:
http://cubify.com/en/Cube

This 3D printer allows the user to design a model in its multiplatform (iOS, Android, and Windows) app, then send the model wirelessly to the printer over Wi-Fi. The touch screen allows users to search the company’s large database of objects and find a model to print, without the use of external hardware (such as a computer). It is desk-sized, so it can fit in an office or a classroom easily.
Accessible Sound System

In a studio environment, it is important for instructors to communicate with students in different rooms or groups. In an interactive learning situation, various activities are going on at all times, and communication with students can be difficult. Through the use of an accessible sound system, instructors can easily communicate to students within the Studio. Students working on projects may also take advantage of a sound system by using it for presentations or music that enhance their project.

FlexCat eBeam Engage
**FlexCat**

**Pros:**
- Integrated microphone
- It allows users to play audio through an audio jack

**Cons:**
- Currently has no user reviews

**Information:**
- Battery life: 10+ Hours
- Wireless Range: 200ft
- Dimensions: 8.5" x 5" x 3.5"
- Comes with group speakers, remote, charging station, and classroom speaker
- Can connect multimedia audio

**Price:**
- 10780 dkk (Two Speakers)
- 12884 dkk (Three Speakers)
- 14988 dkk (Four Speakers)
- 17092 dkk (Five Speakers)
- 19196 dkk (Six Speakers)

Reviews: None

Website: http://www.lightspeed-tek.com/products/flexcat/

A 4-6 piece audio system that provides two-way communication for small group instruction. Teachers are able to listen in and communicate with each group through a central monitoring speaker. Teachers have a remote where they can select to talk to individual groups or the whole class. Also includes a charging base and a classroom speaker to enable whole group instruction.
eBeam Engage

Pros:
• Easy access to a speaker
• Also has multiple other features that increases its educational value

Cons:
• Not very flexible as a sound system (it is meant to be a feature of the device, not the main intent)

Information:
• Has an audio in / out port
• Users can plug in their computers or mp3 players to play music or audio with the JBL speaker on the device

Price: 5.390 dkk
Reviews: 4.5 out of 5
Website: http://www.e-beam.com/education/ebeam-engage/overview.html

The eBeam Engage is a magnetic receiver that one can place on the side of a whiteboard, then plug into a computer. Pairing the eBeam Engage with a projector allows the whiteboard to become an interactive presentation tool. It also includes a remote control with a full keyboard, touch pad, and page scrolling buttons, for manual, physical control. Other features include a speaker to play audio from a computer or music playing devices, a microphone to record presentations, and a scroll knob to navigate presentations.
Communication

Communication between students and Professors prevent thoughts and ideas from being misunderstood. Students may not understand lecture material, what is expected from assignments, or when assignments are due. Good communication with students inside and outside of the classroom are both factors that can benefit a student's education.
### FlexCat

#### Pros:
- Integrated microphone
- Facilitates group activities, which are a common aspect of studio learning

#### Cons:
- Currently no user reviews

#### Information:
- Battery life: 10+ Hours
- Wireless Range: 200ft
- Dimensions: 8.5" x 5" x 3.5"
- Comes with group speakers, remote, charging station, and classroom speaker
- Can connect multimedia audio

#### Price:
- 10.780 dkk (Two Speakers)
- 12.884 dkk (Three Speakers)
- 14.988 dkk (Four Speakers)
- 17.092 dkk (Five Speakers)
- 19.196 dkk (Six Speakers)

#### Reviews:
None

#### Website:
http://www.lightspeed-tek.com/products/flexcat/

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A 4-6 piece audio system that provides two-way communication for small group instruction. Teachers are able to listen in and communicate with each group through a central monitoring speaker. Teachers have a remote that allows them to select to talk to individual groups or the whole class. Includes a charging base and a classroom speaker to enable whole group instruction.
NearPod

Pros:
• All device types (mobile, tablet, laptop)
• All Operating Systems (OS X, iOS, Windows, Android)
• Free
• Can share lessons with other teachers

Cons:
• Less in-person communication
• Likely not useful for some Studio classes
• Some shared lessons cost money

Information:
• Available for all device types (smartphones, computers, tablets)
• Available for all major operating systems
• Students can respond to questions from their device
• Measure and track student performance

Price: Free

Reviews: 3.5 out of 5

Website: www.nearpod.com

This application facilitates the sharing of presentations, webpages, and graphics. A professor can open the app on their device (tablet, phone, laptop), and touch the “start class” button. Students open the app on their devices and input a class ID PIN, then the professor can share relevant information with his or her students by sending it directly to their smartphones or tablets.

THIS TECHNOLOGY DID NOT PASS THE FACULTY VALIDATION SURVEY: CBS already has software (CBS Learn) that has this functionality.
When working on projects, students may be required to gather statistical information. To do this, polling technology must be used. Software can be used to make this process easier and to help organize and graph results.

SurveyMonkey  Google Forms
SurveyMonkey

Pros:
• Free up to 100 surveys sent
• Most popular polling service
• Use on browser or through mobile app

Information:
• Popular polling / surveying tool
• Free for most common use
• Use through browser
• Can be used through mobile app
• Simple to use
• Support for many languages (including Danish)
• Social media and email integration

Cons:
• Costs to send more than 100 surveys
• Free for only the first ten surveys created

Price: Free
Reviews: 4 out of 5
Website: www.surveymonkey.com

SurveyMonkey is a free, easy to use survey tool. The user is able to make surveys, each with various types of questions. Then, one can automatically send the survey to up to 100 people for free.
## Google Forms

**Pros:**
- Simple use
- Free
- Covers all basic polling and data summary

**Information:**
- Free for most common use
- Easy to use
- Basic polling software

**Cons:**
- Concerns exist about data from Google being gathered by American National Security Agency
- Less visually appealing than other options
- Not as advanced as other options

**Price:** Free

**Reviews:** 4 out of 5

**Website:** drive.google.com

Google Forms are free, easy to use survey tools. Create a survey by specifying the type and content for each question. The user can easily send the survey to an email list. While it has fewer features than other survey options, this makes it simpler and possibly satisfies all of the user's needs.
Studio learning often focuses on students working collaboratively on a project. In order for students to successfully work together, they may have to share their work and progress with other members in their group. Various software allows this to be easily done, so students can let others see their materials. It also enables students to work on the same document simultaneously.

Dropbox  Google Docs
Dropbox

Pros:
• Free up to 2 GB of files
• Simple to use
• File sharing between collaborators
• Files backed up on the cloud
• Desktop application automatically syncs

Cons:
• No live editing (offered by Google Docs)
• Less file storage than Google Docs

Information:
• 2GB of free file storage
• Files backed up on cloud
• Files can be shared between users
• Desktop app acts like any other folder and does all of the work

Price: Free
Reviews: 4.3 out of 5
Website: www.dropbox.com

The user only needs to create an account and download the desktop application. Files are then able to be saved on a server - one can log into dropbox.com and access these files from any computer. These folders can be used to share documents with students - right click on a folder or document, click “Share”, and enter another user’s Dropbox username or email.
### Google Drive

**Pros:**
- More storage than Dropbox
- Offers live collaboration on files

**Cons:**
- Can behave weird when some users aren’t logged in with a Google Address

**Information:**
- Free storage of up to 15GB of files
- Collaborate live with other users
- Share files and folders
- Upload and download documents

**Price:** Free

**Reviews:** 4.5 out of 5

**Website:** drive.google.com

The user can create or upload files and folders to his or her Google account. The user is also able to share with other users by clicking “Share” and entering their emails. The documents are then editable in real time.
Interactive Interfaces

The Studio provides a very interactive learning environment. Many classes focus on groups in which students work together on a project. An interactive interface creates a touch-screen technology that provides students a way to physically change and edit data.

eBeam Engage                eBeam Edge
## eBeam Engage

<table>
<thead>
<tr>
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<td>• Can enhance presentations</td>
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The eBeam Engage is a magnetic receiver that one can place on the side of a whiteboard, then plug into a computer. Pairing the eBeam Engage with a projector allows the whiteboard to become an interactive presentation tool. It also includes a remote control with a full keyboard, touch pad, and page scrolling buttons, for manual, physical control. Other features include a speaker to play audio from a computer or music playing devices, a microphone to record presentations, and a scroll knob to navigate presentations.

Website: [http://www.e-beam.com/education/ebeam-engage/overview.html](http://www.e-beam.com/education/ebeam-engage/overview.html)
eBeam Edge

Pros:
• Does not interfere with whiteboard work
• Can enhance presentations
• Easy to implement (it is magnetic, or it can be mounted by a bracket)
• Has an active tech support

Cons:
• There is a learning curve for the software

Information:
• The whiteboard becomes an interactive screen when content is projected on top of it.
• By itself, it can capture activities performed on the whiteboard

Price: 3.884 dkk
Reviews: 4 out of 5
Website:
http://www.ebeam.com/education/ebeam-edge/overview.html

The eBeam Edge is a magnetic receiver (pictured on the left) that one can place on the side of a whiteboard, then plug into a computer so that the actions performed on the whiteboard (drawing with markers, tapping the board with their included stylus) are translated to the computer. When paired with a projector, the whiteboard can become an interactive presentation tool.
Media Manipulation focuses on software that creates imagery, where textures, lighting, and effects can be applied to edit and enhance an image. These solutions can be used to help students express their creativity in a way that markers and white boards cannot accomplish by using software that is simple and time efficient. Students can use it to enhance their presentations and proposals by creating a more professional feel.

Gimp
Gimp

Pros:
• Very popular open-source projects
• Good documentation and lots of online tutorials on basic functions
• Free
• All Operating Systems, even Linux

Cons:
• Difficult to use (but all photo editors are)

Information:
• Edit photos with the same power as Photoshop
• Free
• Available on Windows, OS X, and Linux
• Difficult to use for those new to photo editing

Price: Free
Reviews: 4 out of 5
Website: http://www.gimp.org

A free photo editing software that replicates the functionality of Photoshop. Features include tools for layering, shading, and coloring.
Presentation Display

Presentations are used to engage and help students visualize information. Students can show pictures, videos, charts, and slideshows to a whole classroom through the use of a presentation display. They can also be used by students to display media for a project or presentation they are involved in.

BenQ MW23       Epson EX6220
## BenQ MW523

**Pros:**
- 1 year warranty
- Has video inputs
- RS232 Port and USB Port

**Cons:**
- No reviews

### Information:
- Brightness: 3000 Lumens
- Weight: 2.3kg
- Size: 11cm x 30cm x 22cm
- Image Size: 80cm-772cm
- Digital input: HDMI
- Focus and Zoom Manually
- 1280x800 resolution

**Price:** 2.681 dkk

**Reviews:** None

**Website:** [http://www.projectorcentral.com/BenQ-MW523.htm](http://www.projectorcentral.com/BenQ-MW523.htm)

A classroom projector with a 1280x800 resolution which can be moved anywhere in a classroom to display an image onto any surface.
### Epson EX6220

**Pros:**
- 1 Year Warranty
- Has Video Inputs
- RS232 and USB Port
- Comes with a carrying case

**Cons:**
- No Reviews

**Information:**
- Brightness: 3000 Lumens
- Weight: 2.4kg
- Size: 8cm x 29cm x 23cm
- Image Size: 83cm-816cm
- Digital input: HDMI
- Focus and Zoom Manually
- 1280x800 resolution

**Price:** 3.232 dkk

**Reviews:** None

**Website:** [http://www.projectorcentral.com/Epson-EX6220.htm](http://www.projectorcentral.com/Epson-EX6220.htm)

A classroom projector with a 1280x800 resolution which can be moved anywhere in a classroom to display an image onto any surface.
In many lecture halls, Professors are starting to record classes, enabling students to re-watch a class. Class recording technologies are also being used so students can watch a lecture before class, and then implement what they learned in the lecture during class time. In a studio learning environment, students may use this technology to record their presentations and projects, and to look back at the recordings for reflections.

Echo360  GoPro Hero3
Echo360

Pros:
• Can be installed with different bandwidths, number of classes, etc.
• Can be installed to be compatible with numerous devices in multiple classrooms
• Used consistently by various universities

Cons:
• No reviews
• Requires installation

Information:
• Embedded into most CMS/LMS systems including Blackboard, Moodle, ANGEL, iTunes U and custom portals enabling you to deliver you instructional content to students the same way you always have
• Integrate into existing room control
• Allows you to record in-class content for on-demand viewing and host live webcasts for distance students
• Leverage the technology already in place throughout your institution
• Professors have the freedom to create and edit customize instructional content

Price: 17.777 Danish Krone
Reviews: None
Website: http://echo360.com

Echo360 is a lecture capture system which enables faculty to record audio, visuals, and video for students to access online in a digital format. Once installed, faculty need to select “start recording”, configure their microphone, and set a title for their recording. Captures are started, stopped, and paused by pressing “start capture”, “pause capture”, and “stop capture”. To publish, all faculty need to do is press the “publish recording” button.
# GoPro Hero 3

## Pros:
- High-quality recording meant for motion
- Waterproof, highly durable
- Mounts allow for versatility in placement
- Built-in Wi-Fi for remote controlling

## Information:
- 720p - 1080p resolution, 30 fps, Ultra wide – Medium Field of View
- Camera: 74g
- Rechargeable battery
- Two mounts are provided, others available for purchase
- GoPro app allows Wi-Fi use

## Cons:
- Plenty of room for user error
- Mounts can be distracting or obtrusive

## Price:
1.899 dkk

## Reviews:
4 out of 5

## Website:
www.gopro.com

GoPro is a durable, waterproof, mobile, high-definition camera. It comes with a mount that allows it to be attached to various surfaces, including your head, a wall, or a bike. It has built-in Wi-Fi, allowing for remote recording and control.
Simultaneous Classroom Telepresence

Many professors in the Studio expressed interest in the ability to have classrooms communicate with professors in different countries, or for students to work with other students in a different country. By having the technological means for a simultaneous classroom telepresence, Professors and students would have the means to communicate and work with anyone.

Samsung TV Cam VG-STC3000
Samsung TV Cam VG-STC2000
Samsung TV Cam VG-STC3000

Pros:
• Lens Cover to protect privacy
• Two built in microphones
• Comes with USB cable

Cons:
• Currently unavailable

Information:
• Skype-to-Skype HD Video Calls
• 2x digital zoom
• Interface: USB 2.0
• LED TV: 2013 F4500, F5300, F5400, F5500, F5700, F6200 ~ F6900, F7100, F7200 2012 EH4500, EH5300, EH5450, ES5500, ES5700 ~ ES6900 (Except ES6003), ES7100 2011 D6500 and above (32” and above)
• 640x480 resolution

Price: 529 dkk

Reviews: 4.5 out of 5

Website:

Connects to any TV or display using a USB port.
Samsung TV Cam VG-2000

Pros:
• Lens Cover to protect privacy
• Two built in microphones
• Comes with USB cable

Cons:

Price: 1.025 dkk
Reviews: 4.5 out of 5
Website:

Information:
• Skype-to-Skype HD Video Calls
• Plug and Play for easy set-up
• 3x digital zoom
• Interface: USB 2.0
• 640x480 resolution

Connects to any TV or display using a USB port.
Sound Studio Equipment

Sound Studio Equipment allows students to express their creativity through sound by playing tracks, performing, and recording. This is another medium that students can work with to help in projects and presentations, as well as provide additional hands-on learning.

Launchkey  Launchkey Mini
Pros:
• Flexible device (the user can use it to play tracks, play the keys, or do both at the same time)
• Creative tool; adding creative devices can benefit the studio environment

Cons:
• If students do not know how to play the instrument, they will not use it
• The user has to learn the software to use the Launchpad feature

Information:
• Has a full-sized keyboard
• Comes with the Novation iPad app and computer program
• Software contains 1GB of loops (the tracks that the device can activate)
• Works with both Mac and PC
• Doesn’t require batteries (it is powered by the device it is connected to)

Price: 1.074 dkk
Reviews: 4 out of 5
Website: http://us.novationmusic.com/midi-controllers/launchkey

The Launchkey is a synthesizer-style keyboard with a launchpad (the yellow and green buttons) and sliders that allows the user to activate and deactivate tracks while playing. It automatically detects and maps to most software when connected to a computer, or one could connect it to an iPad or computer and use the Novation Launchkey app. It is a very useful tool for creating or recording music with studio-like features.

This technology did not pass the professor validation survey: Half of the surveyed professors did not believe that they would want to use this device.
## Launchkey Mini

<table>
<thead>
<tr>
<th>Pros:</th>
<th>Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Small size makes it portable</td>
<td>• It is “lap-sized” (27 keys)</td>
</tr>
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<td>• Flexible device (the user can use it to play tracks, play the keys, or do both at the same time)</td>
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</tbody>
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The Launchkey Mini is a synthesizer-style keyboard with a launchpad allows the user to activate and deactivate tracks while playing. It automatically detects and maps to most software when connected to a computer, or one could connect it to an iPad or computer and use the Novation Launchkey app. It is an extremely useful tool for creating and recording music with studio-like features, and it is portable for easy transport across a room, building, or a city. As the “mini” version, it has reduced functionality, but requires less customization and knowledge.