
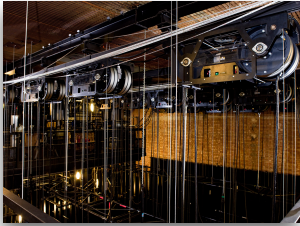





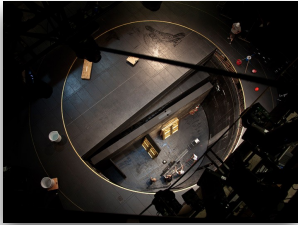


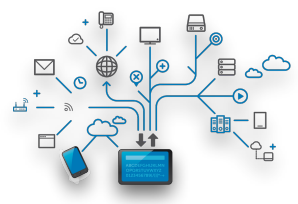

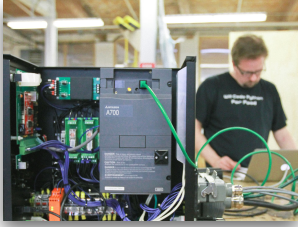



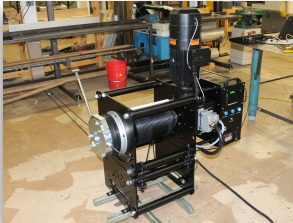



# Jamie McQueen Pecha Kucha Book Report Script Plan



SLIDE	TOPIC	IMAGE	SCRIPT
1	Introduction		The book I've chosen to look into for this presentation is Automation in the Entertainment Industry by Mark Ager and John Hastie - the two co-founders of Stage Technologies. The book is split into two - the first half covering the general background of where the industry came from, is now, and where it's going, with the second half going into detail about how systems are put together, their components, and how to make them work for different use cases.
2	Basics of Automation		Automation is defined as the technology used to move any scenery or performer by means of computer control. It allows for absolute control of speed, position and movement path, as well as giving the ability to pre-program and move pieces simultaneously. Typical theatrical uses include flying scenery, performers, sliders, trucks, wagons, lifts, traps and revolves. Virtually anything has the ability to be automated.
3	Why It's Growing		There are many reasons for using automation over conventional systems. For one, it's a way for theatre to compete with cinema. Manual flying is also becoming unable to cope with modern demands, with Health and Safety law in some countries limiting the amount of counterweight sets theatres are allowed to have. Switching to automation reduces manual handling, though, it does require specialist training to operate, and costs a lot more up front to install.
4	Automating a Show		One of the first areas the book covers is how to go about automating a show. Planning often begins 2 years in advance, with the supplier taking 6 months of that to build and test a system - if it's custom built. Once the spec has been agreed upon, the system will be manufactured and tested offsite by the supplier (if time allows).

<p>5</p>	<p>Timeline of installation</p>		<p>It'll be installed in the venue and commissioned - a process which tailors each motor for a venue's specific environment. Then follows a process of handover and op training and then snagging, as the system starts to be used. Using automation will affect rehearsals, performance, and the technical and artistic personnel involved in the show.</p>
<p>6</p>	<p>Integration in Performance</p>		<p>An ideal rehearsal timeline would consist of offline programming, a dry tech without the company to deal with any snagging issues, a general tech with the cast, dress rehearsals, then the first performance. When introducing cast to the system, it's important to start slow and build up till they're comfortable working with it. It's also important that everyone know who the automation team are and their importance in the instance something goes wrong.</p>
<p>7</p>	<p>Troubleshooting</p>		<p>Always expect something to eventually go wrong. If a fault does happen - be prepared. Program in some emergency cues to deal with issues like lowering in performers. Most issues will be mechanical, start there and work up the chain. If it worked once, it will work again. Communication with Stage Management is vitally important. They should be able to tell you what you've lost if you don't know. The ultimate aim is to keep the show going.</p>
<p>8</p>	<p>Safety</p>		<p>In the same way lighting affects your eyes and sound affects your ears, automation can remove the ground from under your feet. It's imperative that everyone know of the dangers and how to avoid them. For performer flying, the rescue must be rehearsed first before the system is deemed operational. If you think something is or could become dangerous - don't hit go.</p>



<p>9</p>	<p>The Mega-Show 1</p>		<p>The Mega Show is the Formula 1 of automation. Most famous ones are in Vegas, with the buildings that house them being custom built for the show. Bankrolled from Casino money so budgets are massive (for a \$150m project, \$20-25m will be automation specific). Designed for runs of 10 years, so automation is the only way to guarantee a repeatable run.</p>
<p>10</p>	<p>The Mega-Show 2</p>		<p>Shows run twice a day, five times a week, with a permanent dedicated maintenance crew being employed for the automation equipment. Cirque have started describing the scale of these shows not by performer or audience number, but by number of axis.</p>
<p>11</p>	<p>Components of the System</p>		<p>In part two of the book, they go into more detail about the components of the system. Every automation system has a control desk, a networking computer, a motion system, and the actual object which is being moved. They will also feature a collection of sensors that feed a variety of different information to the operator and allow them to know the system they are controlling better.</p>
<p>12</p>	<p>Control Desk</p>		<p>The control desk sends commands and receives information. They're primarily designed for a theatre environment, and feature an information display and between 2 and 6 playback controls. In a multi-user system, multiple desks can be used to control different parts of the rig - with only one desk allowed control of a single motor at any one time. All data is stored on one central server.</p>
<p>13</p>	<p>Networking Computers and the motion system</p>		<p>The networking computer possess commands from the desk to the motion system and back again, and deals with group monitoring (stopping all if one encounters a fault). The motion system uses a position sensor to monitor where the point is, and then sends a signal to move it to the desired position. If these aren't accurately calibrated, the system will try to over-correct itself when running, the motor will start to oscillate and become unstable.</p>

<p>14</p>	<p>Sensors</p>		<p>There are loads of different kinds of sensors which speak to the motion system. Encoders locate the motor, position sensors locate the object, load cells monitor against overloading on a point. Safe edges, light curtains, and limits are all safety measures to prevent things getting caught or overshot.</p>
<p>15</p>	<p>Winches</p>		<p>Winches are the most common piece of stage machinery - made up of steel rope on a drum. Usually used for power flying, counterweight assisting, or as point hoists. Provide the versatility of being able to be positioned anywhere on a grid through divert pulleys, or travelling beams. For safety, they must have two individual brakes, unless being used laterally to pull something.</p>
<p>16</p>	<p>Lifts</p>		<p>A piece of stage floor which rises and falls. Methods of doing this include a toothed track sliding over a gear and forcing the floor up, hydraulics which are really powerful and silent, but hard to keep clean, or a method which is growing in popularity - the LinkLift by Serapid, which is a chain that, when rotated to become vertical, becomes rigid and forces the platform up.</p>
<p>17</p>	<p>Understage Machinery</p>		<p>Other onstage machinery like sliders, trucks, and wagons are either guided by slots or tracks cut into the stage deck or by radio control. These can be pulled by small winches, run over a belt and gear system, or be pushed by a LinkLift chain (especially useful if paths have to cross). A revolve will usually be driven by a toothed belt system, as it keeps a physical connection with the piece and allows for the greatest control of speed and position.</p>
<p>18</p>	<p>Performer Flying</p>		<p>Main reason for automated performer flying is it's repeatability and accuracy. Single winch flying moves the performer up and down, perhaps incorporating a pendulum swing for greater movement. In 2D space, a track and drop system where the point travels along on a trolley as it moves up and down can be used, as can 2D bridles which allow for flight over an audience for example. Additional winches can allow 3D movement, though for this to work properly the desk must have a program capable of plotting 3D moves.</p>

<p>19</p>	<p>Case Study</p>		<p>The book features loads of case studies of many different shows and venues, one of which I'll highlight. Cirque du Soleil's KA at the MGM Grand in Vegas runs off a 211 axis system, including 16 radio controlled performer flying winches, which the performers control themselves from radio transmitters in their hand. The Axis list covers 7 1/2 pages of the book.</p>
<p>20</p>	<p>Summing Up</p>		<p>Overall, automation is a safer, less manually intensive alternative to conventional flying methods and allows directors and designers to push their ideas further than they've had the opportunity to before. If the system is designed, installed, and operated properly, it's often the best method for executing the desired artistic effect. And so far as safety is concerned, you're as likely to be struck by lightning as you are to die due to a mechanical automation failure. Thank you, and I'd like to take any questions.</p>