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Setting up systems for ensuring new equipment fits the bill -
The Weyerhaeuser USA Experience

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SETTING UP SYSTEMS FOR ENSURING NEW EQUIPMENT FITS THE BILL -
THE WEYERHAEUSER USA EXPERIENCE

Executing capital properly within the manufacturing unit can create long term success through competitive advantage. Many times organizations are in a hurry to implement new technology and make poor equipment selections, followed by inadequate installation and start-up. This lack of proper planning throughout the capital process can be avoided by taking the time to ensure that all the issues and timetables are worked out in advance.

A disciplined capital process will ensure that the proper equipment is selected for the right reasons. After market need is justified, robustness, accuracy, capacity, maintainability and user friendliness are some of the initial decisions to be made. Involving your workforce at all levels of the capital process is critical. Whether you choose to install the capital yourself or contract, all phases of the project from initial scope through commissioning must be done methodically.

In some cases, it may take as much effort to prepare your workforce to receive the equipment as it does to install. PMs, training for operators & maintenance and parts support must be completed prior to start-up. Purposeful benchmarking can reduce having to go through the learning curve one more time.

It has been my experience that properly deployed capital can create step shift improvements in metric performance. Good capital projects make life easier on the whole organization, improve competitive advantage and bring strength to the bottom line. There is every reason to do it properly; it just takes time and effort.

The heavier that a capital project is front-end loaded, the greater the chance for success. Strategic validation, opportunity validation, alternative selection and appropriation request must be complete before beginning the installation and start-up phases.

The following is an outline of the process for a successful capital project. It is basic in nature, but thorough in its scope.

1. **Select cross functional team.** This will be a combination of engineers, maintenance and operations folks, contractors, equipment vendors and the Project Manager. Responsibilities will be established and timelines created. This is the time and place to set the standard for quality and safety during the project.

2. **Establish equipment specifications and manufacturing standards.** The project team has an opportunity to specify standards. The basic design should already be established, but motor size, reliability enhancements, tailoring and manufacturing quality verification are all possible.

3. **Prepare for receipt of the equipment.** A whole host of things must be done at this stage. This is where the operation usually falls on its collective sword.
   - Necessary building modifications must be planned.
   - Utility infrastructure must be planned and upgraded to account for increased demands in power, hydraulics, air and water.
Conduct training for operators and maintenance people. Create standard operating procedures and PMs. Have spare parts already at the mill and in stores.

Send key personnel to the vendor to verify manufacturing quality of new equipment before shipment.

Establish and gain buy-in for installation and commissioning plan.

4. **Take receipt and verify specifications.** Once again, go through and ensure that every component was delivered as specified. Check cylinders, hoses, fasteners, welds, bearings, fuses, laser eyes…. Make sure that you get what you paid for.

5. **Begin coordinated install.** Ensure that the project team is clear on planning and timing. Everyone must understand what they are responsible for and when to pass the ball to the next person or team. Clarity is paramount at the point of interface. Individual teams must clearly express expectations with regard to what is needed prior to moving into their phase of the project.

6. **Finish terminations and verify rotation.** When installation is complete, ensure that systems are flushed, blown down and generally made spotless. Check for proper rotation, fluids flow and pressures. Adjust accordingly.

7. **Begin pre-commissioning phase.**
   - Dry run equipment at slow speeds to verify basic functionality and clearances.
   - Conduct wet run with material to determine adjustments to speed, clearance, timing, photo eye positioning, computer programming… This phase is done at relatively slow speeds at first and then stepped up incrementally.
   - It is very important to use root cause methods when debugging in pre-commissioning phase. These methods will ultimately determine faulty parts, faulty design and faulty installation.
   - Adjust the system as necessary to handle the increased load. It must be adjusted to eventually operate at above planned capacity.

8. **Conduct commissioning run.** As agreed upon in the purchase contract, conduct the commissioning run when you are confident that reliability, consistency and capacity can be achieved. Usually, commissioning runs are planned for long periods at greater than normal operating capacity.

   The criteria for the acceptance trial are clearly spelled out in the purchase contract. Be very demanding when preparing this section of the contract.

9. **Post commission / regular operations.** Clearly establish and post operating parameters for the equipment. Settings for oil pressure and temp, air pressure, water flow rates, speeds and timing are very critical. Each shift must operate this equipment the same way. Having common operating settings makes it possible to troubleshoot more effectively.
These baseline parameters eliminate some of the variability in the system. With regard to manufacturing performance, baseline equipment performance against an accepted target. Understand what the process capability is and monitor for standard deviation. As the process goes out of control, gain an understanding for its root cause and adjust back to a controlled state.

In closing, remember to include mill personnel in all of the project phases. They must want to take ownership early of the equipment and the process. Their input and participation will bring these projects in ahead of time, under budget and functioning well above capacity.