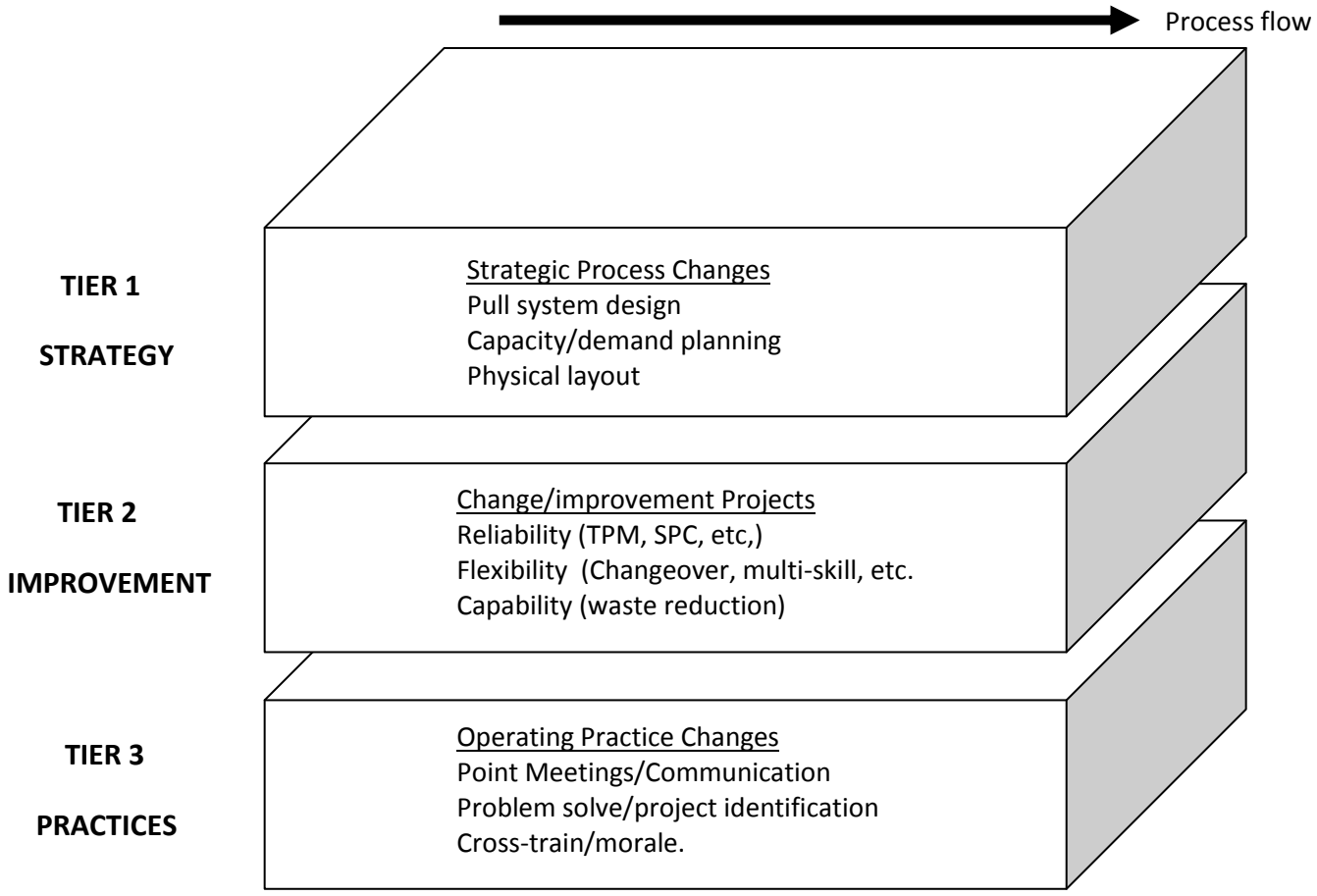
3 TIERS FOR CHANGE

HOW DOES YOUR ORGANIZATION STACK UP?

A Positional Paper by Nigel Southway of Nexus Consulting Service



The 3 TIERs for change explained…

In every business process the move towards world class productivity and a LEAN operating performance calls for changes and improvements to take place in 3 distinct vertical' segments or 3 TIERS.

A business cycle time loop is a horizontal view or slice across the total business process for example from the first customer order to product or service delivery to that customer.

In the illustration above, we are segmenting that process vertically into 3 TIERS of change activities that must happen to improve a process.

The question is always: Where do we start - which TIER do we improve first?

First let us explain the types of activities and changes in each TIER……

Tier 1 – STRATEGY……Strategic Process Change

Change in this Tier 1 involves both systemic and physical changes to the business processes and the way the business is operated and organized.

Another term for the Tier 1 change is "Business Re-engineering" or "Process Re-engineering".

In Tier I these strategic process changes are categorized in 3 ways:

1. Pull System linear flow design changes
2. Capacity/demand planning system changes
3. Business facility layout changes

1. Pull system/linear flow design changes

This involves the installation of systems to enable true customers' demand to become linked with the actual operating process schedules. Inventory stock buffers and the burden of in process control transactions and other non-value added effort must be identified so that they can be eliminated. The remaining value adding (or value stream) operations have to be designed into a "Linear Flow" customer demand driven "pull" system which must preferably have a short cycle time. The traditional high inventory. Long cycle time, forecast driven "push" system will need to be replaced by this pull system.

The de-emphasis on potentially inaccurate forecasting for yet to be ordered final products or services will allow energy to be focused on planning and forecasting any longer range material supply, supplier capacity and local production output capacity.

Emphasis must be placed on the management of capacity in more macro terms rather than second guessing and inaccurately trying to predict the yet-to-be defined customer order.

This change in the process of planning future business output requires a re-alignment of business process capacity/demand planning.

2. Capacity/demand planning system

All business organizations must realize that they are really selling "capacity" and that it is the allocation of this capacity to deliver products or services in a short cycle time that provides value and therefore satisfies the customer. The inventory involved the quality inspection the cost control or record keeping may have no value to the customer; just the product/service provided on time! These other items may be non-essential or at least less important from the customers" viewpoint. He assumes your business will take care of quality and cost and so takes these parameters as a given!

Capacity must be planned/allocated

Such a pull system will require an "available to promise- demand/capacity system to ensure that capacity is allocated and available for the customer as promised.

Only capacity that is truly available should be sold or allocated to minimize unnecessary backlog of demand so that linear flow and short cycle time performance is protected and can be maintained for customers who have been pre-allocated capacity.

In this short cycle time/pull system environment, inventory may be a fair trade for capacity. Automation capital that increases the production capacity level can be funded from the inventory reduction savings.

It is probably better to have slightly excess capacity that is flexible. Reliable and highly capable of delivering product or services to the customer than long-term inventory that may or may not meet the specific demand the customer requests.

We will talk about these 3 performance pre-requisites (flexibility/reliability/capability) required for a pull system performance more in Tier 2.

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3. Business facility layout changes

Once the pull system design is complete and the pre-requisites in Tier 2 planned, a business process re-layout to improve the process flow and travel times can be planned and implemented.

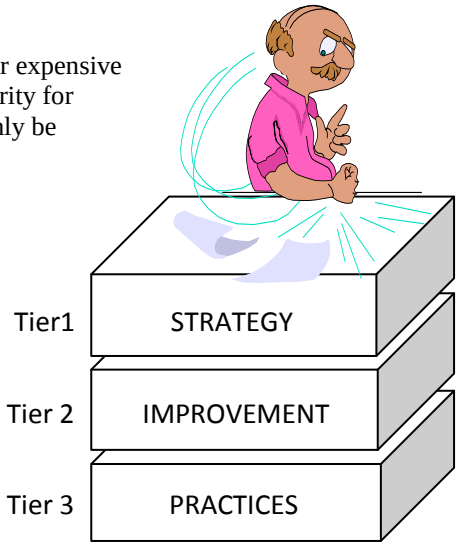
This physical layout and the pull system design will have to be in keeping with the business strategy for the overall business, and will require a sound knowledge of future market and product plans as well as any advances in technology.

Don't "move too fast" ...

Most business can evolve to a close-to-entitlement pull system without significant or expensive re-layout. This suggests that sometimes relayout may not always be the highest priority for change, but should form only a part of the process re-engineering Tier 1 plan and only be undertaken as part of an integrated 3 Tier approach.

This layout change may coincide with and include a refocus of the operational organization (e.g. - focused factory or plant within a plant, work cell concepts and business pods etc, etc.).

In practice, the formation of focused workcells, etc. become part of the pull system design, and such organizational adjustments necessary will need to become evident to support this pull system.



Tier 2- IMPROVEMENT…….Change/Improvement Projects

Before an organization can fully realize the benefits of re-engineering its planning and control systems, its process layout and the resulting organizational structure, it must be entitled to operate such systems and be entitled to do business in this new fashion by undertaking many improvement (or change) projects. We call this the 'Tier 2 change activities.

Although most of these change/ improvement projects in TIER 2 yield savings in their own right and are worthwhile, the real pay-off and motivation for undertaking these TIER 2 projects is the successful execution of Tier I.

In Tier 2, a range of change/improvement projects must be undertaken to evolve the business process towards a perfect waste free process.

A pull system is much easier to introduce into a "perfect" process.

This "perfect" process will have been changed and improved so that it exhibits excellence in the 3 key process performance parameters :.. ***Flexibility.. Reliability.. Capability***

These are the 3 key process performance parameters for a linear process and all 3 must be improved for a pull system to operate effectively.

Flexibility - unless lot sizes and change-over times between product or service types are small, the ability to offer delivery with a high variation of real-time demand in short cycle times will be either difficult or impossible.

The purpose of reducing change-over time is to not only eliminate the non-value adding effort, but more importantly, to be able to reduce the lot size and then be able to perform more change-overs. This will allow the output of more product or service mix to meet the higher variation and mix of customer demand across the product/service range in real time. The business system can then operate without large inventory or adverse wasteful scheduling to "smooth" the demand.

This flexibility, or agility, is a key parameter for any business and is a core requirement for short business cycle times.

This concept of flexibility does not just apply to equipment in the process, such as machine tools or assembly equipment or test equipment, etc. It also applies to the materials, handling of the materials and also the PEOPLE in the process and the PEOPLE (and equipment) who support and control the process.

Therefore, the more cross-training and skill redundancy available, the more the flexibility of the people in the process can be utilized in a pull system to achieve a linear flow and a short cycle time delivery environment.

Reliability - in a short cycle time/pull system environment high reliability is another performance pre-requisite.

Capacity must be available instantly, not just on an average output basis, but in a highly reliable manner.

In a. push system with a long cycle time, high inventory and non-linear flow. A low process reliability can be tolerated unless it affects the bottleneck step in the process or the time when we need "all the capacity we can get". Although this low process reliability is hidden in this environment, it's still non-value adding and usually can be an expensive hidden cost!

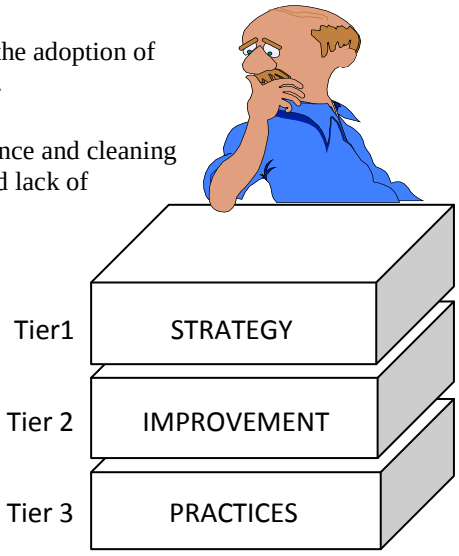
In a pull system environment where the inventory buffers no longer exist, any lack of reliability in the process will become highly obvious. For a pull system to work and maintain the short cycle time to the customer in a reliable manner, all elements in the process must be reliable!

How do we get reliability?

Total Productive Maintenance (TPM) programs for all equipment used in the process and the use of statistical process control (SPC) for materials and parts consumed in the process will be essential, to ensure the reliability of the process is achieved.

Operator skill training certification programs, process housekeeping policies and the adoption of an effective safety system and ongoing audits for equipment also affect reliability.

Don't forget the simple "non-process" related items. Imagine the lack of maintenance and cleaning of the cooking utensils in the cafeteria creating non-productive food poisoning and lack of attendance to work that day! Although it may sound mundane, every little thing affects reliability and is everybody's business!



Capability - to operate in a pull system/short cycle time environment, the process capability must be improved via various waste elimination projects so that the non-value added steps in the process are reduced (material moves, inspections, queues, counts, rework, scrap remakes, etc.)

The product or service design specifications and how they interrelate with the process design capability will also be a factor in how well the manufacturing process capability will allow the elimination of waste.

Once the process has been simplified by the planned reduction of waste, the improved linear flow of the process will be more conducive to an effective pull system.

The use of powerful tools such as six sigma to measure and analyze the capability of the business process and its relationship to the products and services is a focal point that can be employed to improve the process and overall business product and services capability to the customer.

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Tier 3 – PRACTICES…….Operating Practice Changes

As the vision of a business pull system is communicated and understood, and as re-engineering and improvement changes are planned and executed in Tiers I & 2, it will be necessary to change the operating practices in the process.

The operating practices in Tier 3 concern the role of controlling and maintaining the operating process and developing a continuous improvement environment

What changes in operating practices?

In the new pull system, everything and everyone must be Flexible, Reliable and Capable. Also a solid knowledge and status of the process capacity must be maintained.

- Operators and support people must know how to work together to share the responsibility to improve and maintain the reliability of the process, its equipment and tools.

- The increase in the flexibility and agility in the process will require ongoing teamwork.

- An ongoing continuous improvement attitude will be necessary within and across all elements of the organization to further identify and attack waste in the process.

- Some problems may still occur, but solutions will need to be rapid and permanent, identifying and solving the problem at source not just a band-aid!).

- Problem solving skills must reside within the process by those that operate it; not just by external support "experts". The support experts may need to become closer to the process to reduce the communication gap between "user and fixer".

- An improved learning process needs to develop between product or process designers and those that operate the process to improve the overall capability of the business processes, products and services.

- A clear change improvement project identification process needs to exist in Tier 3, where improvement opportunities are defined and reviewed for Tier 2 project teams to focus upon.

The Point Meeting Environment (Tier 3)

Point meeting environment between and within departments must be installed to provide the correct level of communication to support Tier 3 operating practices.

Regular (daily) and ad-hoc point meetings, held at a moment's notice, with a variable but short agenda (10 minutes typical) will be a major new operating practice that will set the scene for all of the Tier 3 operating practices.

These short communication sessions, held at the "point of use" in the process to "make-a-point"! Or to "point the direction" will be a strong feature in a successful pull system environment

Point meeting activities should be organized by department or by workcell and will focus on increasing the level of autonomy within and across the process area.

This daily communication practice will provide the environment for the process to be controlled, maintained and managed on a real time (short cycle time) basis using the empowered participation of everyone in the process.

Point meetings ensure that;

(i) Inter-departmental communication is formally maintained to provide the smooth running of the pull system.

(ii) Internal department communication is ongoing and ensures continuous improvement at department or cell operation level.

(i) Visual display techniques are evident to promote active and effective communication attitudes at all levels.

(iv) Real-time problem solving skills are applied to minor problems on the spot and solutions incorporated into the operating practices for the workcell.

Use a flip chart……keep it simple!

One of the most effective point meeting communication tools is the simple flip chart.

The flip chart alone is not enough to create the correct operational environment. However, if the flip chart is used as a communication tool as part of a structured daily point meeting, then a powerful mechanism for change has been created.

Without proper training and reinforcement on how to perform point meetings and use a flip chart as a communication tool to encourage involvement and empowerment, attempts to use it will ultimately be less than fully successful.

Providing this environment for communication status and knowledge in the new process will demand new roles for the supervisor and new operating tools for everyone.

The Supervisors will have to change!

The role of the supervisor in this new 3 Tier environment will have to change to that of coach or facilitator, rather than controller. This will be an appropriate style change for supervisors in a pull system, where the short cycle time and the need for linear flow will demand that the process become much more self-managing.

Supervisors will need to understand their new role in this continuous improvement environment and how they are expected to perform this role. For years, organizations have been implementing strategies to develop a continuous improvement environment. Unfortunately, this has been done by forced employee participation rather than accepted employee empowerment, as facilitators and coaches, the supervisor must understand and be able to implement tools that will allow participation through empowerment.

The Employees will have to change!

As well as the supervisors, the employees will not only need to understand why change is necessary, and what those changes will be, but also what their role should be. Education and training on communication tools, such as a flip chart will allow the employee to participate in the Tier 3 environment. Being taught how to undertake these day-to-day activities and make decisions that affect their productivity and to assist with the implementation of change, not only makes sense for the smooth operation of a pull system, but also provides an empowered workforce by involving them in running the business.

The formation of work teams via appropriate participative supervisory styles will allow the employees to become self-directing. And fully empowered to maintain, control and improve the business process for which they must take firm ownership.

Education & Training is key!

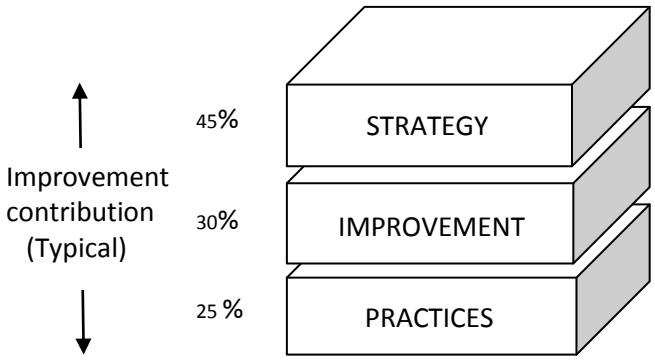
Therefore, education and training will be required for supervisors and employees which will allow the use of these concepts and tools to create an empowered, participative work force. This will be essential towards establishing all 3 Tiers of the building Bricks for success.

Contribution to improvement savings

Each Tier may have a different level of contribution towards the overall business improvement and the savings from baseline to entitlement for different organizations.

However, these contributions are interactive between Tiers, so the % of contribution per TIER are only indicators and lack of progress in Any tier may reduce the contribution in another and affect overall performance toward the goal of a LEAN process.

TYPICAL IMPROVEMENT CONTRIBUTION



<u>Comment on typical % of improvement per TIER</u>

In a typical business loop, if all 3 Tiers are installed, then:

45 % approximately of tangible savings will probably result from Tier 1 changes in the area of inventory and material handling and transportation reductions. .

30% approximately of tangible savings will probably result from Tier 2 changes in the area of cost reductions/improvements associated with overall waste reductions, rework/scrap, etc. and reduction in lost production capacity due to improved process reliability and capability.

25% approximately of tangible savings will probably result from TIER3 changes via day-to-day problem identification and resolution, etc.

NOTE:

Unless Tier 2 is installed and progress made…. TIER 1 will probably not be operational.

Unless Tier 3 is installed, Tiers 1 & 2 will be difficult to sustain.

Also, overall productivity and output will improve via the many small but worthwhile operating level improvements obtained from the work team approach created by this TIER 3.

Implementing the change structure

How is the change Environment installed?

The correct answer is as soon as possible and hopefully before your competition.

However, which Tier first is the real way to approach the question!

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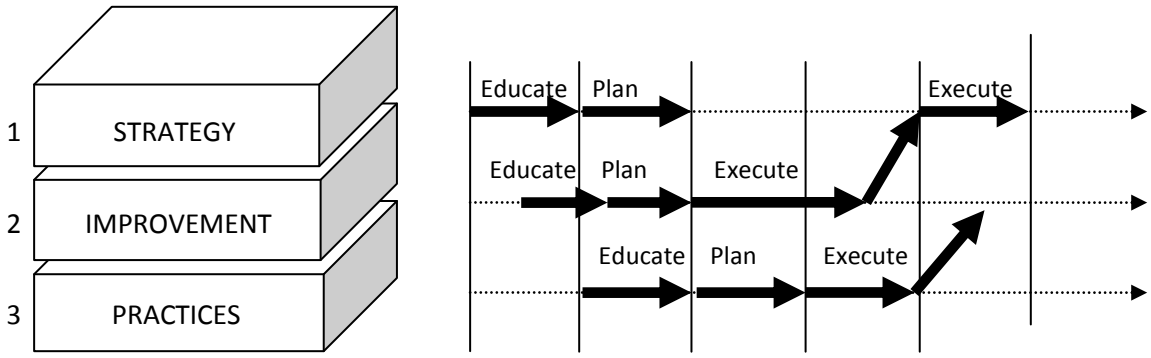
The correct approach is to plan top down & execute bottom up across all 3 Tiers.

The 3 Tiers have to be implemented together in an integrated way for maximum effect.



A proposed schedule of installation events for all 3 Tiers

The proposed schedule explains how Tier I planning should initiate the overall 3 TIER change process. But the execution of TIER 1 should only occur after sufficient projects in TIER 2 have been executed to "entitle" the pull system changes and the process re-lay-out changes to be undertaken.

A major pitfall made by many organizations in the past has been to rush the Tier 1 activities because they "look significant" (and also expensive) without being able to support the new process with the necessary improvements in the three key parameters in Tier 2.

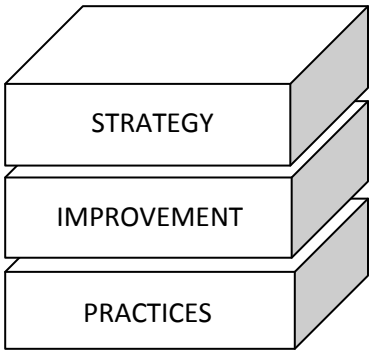
The other pitfall is that Tier 3 is either executed late, or worse, not at all, such that the Tier 1 & 2 activities are not supported well over the long-term and the change is not "sustained".

Please note that all planning should be completed before any execution takes place. In practice, this is difficult to accomplish. But preferred!

Please also note that a schedule for appropriate education for all those involved precedes all other activities in each Tier!

Who is usually responsible for leading change in each Tier?

Everyone should be involved in both planning and executing change within an organization. But in general, the Leadership in each Tier usually breaks down as follows:



Tier	Description	Leadership
1	Process Re-Engineering	Senior/mid Managers
2	Improvement Projects	Mid Mgrs/Staff
3	Operating Practice Change	Supervision/Key operators

Middle Management will usually lead the development of the cross-functional process changes and the improvement projects in TIER 1 and TIER 2.

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lst line Supervisors or Section Level Managers will usually lead the operating practice changes in the form of the point meeting environment and the other communication and coordination devices necessary.

General Comment:

Every organization is different, and leadership will vary!

In a fully empowered situation, anyone (if capable) should be allowed to lead! ……..wow!

An implementation process: The missing ingredient

Implementing change, even when the change requirements have been described in this 3 Tier structure, is no easy matter!

To undertake change in any business process will require an implementation methodology that will:

- Involve all members of the organization m an orderly and controlled change process!
- Generate an integrated Evolution Plan for such changes.
- Provide in-depth initial planning, as well as ongoing tracking of progress.
- Provide the control mechanism for activating and monitoring the various programs and projects across all 3 Tiers, under an integrated schedule, via this single Evolution Plan.

Most of the changes in the 3 Tiers will require coordination through various formal projects which will be mainly cross-functional in nature.

A program/project structure will be necessary to control the TIER 1 and 2 change/project activities that are all part of a single plan called an Evolution Plan and will contain mainly medium and long-term goals.

Minor short-term changes that affect daily operational issues will be handled by short range tasks in TIER 3.

Large projects or issues defined in this TIER must be integrated into the project plans in the other TIERS.

Implementation Approach

The NEXUS 12 Step Implementation Process for large organizations (or the 6 step version for small organizations) provides the correct and robust structure to manage all 3 TIERS for change

[For more information on the NEXUS 12 step Implementation process, see the article of the same name]

Note: This paper is a follow-on positional paper from the book Cycle Time Management - *The Fast Track to Time-Based Productivity Improvement* by Nigel Southway

CTM (Cycle Time Management) is a concept for the reduction of Business Cycle-Time to move an organization toward a LEAN thinking business environment as outlined in the book: Cycle Time Management ... The Fast Track to Productivity Improvement by Nigel Southway of NEXUS.

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