Participatory Ergonomics: A Path to Sustainable Ergonomics

By
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Overview

- What do we mean by participatory ergonomics?
- How do we grow a participatory approach?
- Examples
  - Industrial
  - Office
  - Developing Countries
Participatory Ergonomics

- Two extremes to foster ergonomics:
  - Top-Down “Push”
  - Bottom-Up “Pull”
The Top-Down Push Approach

“You will do ergonomics, and here’s how you will do it!”
Bottom-Up Pull Approach

“Can we get a little help down here please?”

Images Source: Peter Budnick private collection
In practice, it’s push-and-pull that leads to success and sustainability

Images Source: Peter Budnick private collection
Growing Participation

The role of the Ergonomist:
- Leadership & participation
- Gaining respect & approval from leadership
- Gaining respect & approval from associates & stakeholders
- Providing ergonomics expertise
- Developing repeatable, sustainable processes
- Pushing & pulling as needed
Growing Participation: Depends on Organization

- Some organizational structures are more conducive to participation than others
- Hierarchical, top-down, push style management may resist
- Flatter, distributed responsibility management may embrace
- Either way, it’s all about promoting and demonstrating the value of ergonomics
Ergonomics is Cross-Functional by Nature

- Ergonomics can be applied to improve (at the least):
  - Organizational management methods (organizational ergonomics)
  - Production metrics (physical, cognitive, organizational ergonomics)
  - Safety, health and wellness (physical, organizational ergonomics)
  - Product design (physical, cognitive ergonomics)
  - Sales, marketing and customer service (cognitive, organizational, physical ergonomics)

- Ergonomists should be leaders in cross-functional teaming efforts
The (so called) Lean Journey

- Two foundational pillars for success:
  - Continuous Improvement
  - Respect for People

- Ergonomics *is* Respect for People, and Continuous Improvement *is* *what we do*
“... the best way to make money for the stockholders is to take very good care of all of the stakeholders.”

Bill Waddell, Lean Consultant and Blogger

Source: http://www.evolvingexcellence.com/blog/2013/01/shareholders-versus-stakeholders.html
Adapted from http://www.bexcellence.org/Lean-manufacturing.html
Successful Lean Requires Ergonomics

- Make ergonomics an integral part of cross-functional improvement teams and efforts:
  - Create value for ergonomics beyond MSDs alone
  - Promote and demonstrate respect for people as a core team value
  - Be a leader in Lean efforts to ensure ergonomics is recognized, valued and applied
Participatory Examples: Industrial

Many great examples in the Applied Ergonomics Conference Ergo Cup competitions
Boeing Ergo Cup Example

Problem:
Injuries and product damage while installing 136 lb. aircraft doors.

Solution:
Employees designed, built and implemented an assistive tool.

Outcome:
Eliminated injury potential; eliminated parts damage potential; reduced manpower requirement; reduced install time; achieved 67% overall reduction in installation cost.

Source: Ergoweb’s ROI Training, example gathered from Applied Ergonomics Conference Ergo Cup competitions http://www.iienet2.org/ergo/Conference/
Problem:
Worker installing a 26 lb. radiator 80 in. overhead, then apply 72 lb. downward force to seat part.

Solution:
Modify a hoist to assist the lift, placement and seating of radiator.

Outcome:
Previous process resulted in 351 restricted work days, 1 lost work day ($17K cost); new process resulted in 0 restricted or lost days, 0 quality concerns.

Source: Ergoweb’s ROI Training, example gathered from Applied Ergonomics Conference Ergo Cup competitions
http://www.iienet2.org/ergo/Conference/
Problem:
Worker had to apply 71 lb. force to turn steering wheel to find true center when automated processes failed.

Solution:
Designed, developed and implemented portable device to assist workers.

Outcome:
Reduced force requirement to 4 lb. (94% reduction); reduced time requirement by 62%; reduced rejects to near 0; cost savings and avoidance of $80K with $1K investment; 1910% ROI; patent application for new device

Source: Ergoweb’s ROI Training, example gathered from Applied Ergonomics Conference Ergo Cup competitions
http://www.iienet2.org/ergo/Conference/
Participatory Examples: Office

Image Source: http://www.ergoadvocate.com/
Verizon Example

- **Problem:**
  MSDs and absenteeism

- **Solution:**
  Institute an ergonomics program

- **Outcome:**
  33% decrease in MSDs in first 12 months, 60% decrease in MSDs in 24 months, saved $1,700,000 in direct medical costs in 2 years, gained $503,685 in productivity improvements in 2 years, tied ergonomics to corporate absenteeism objective; saved upwards of $6 million on that alone.

“Traditional ergonomic measures do NOT keep corporate executives up at night.”

Jack D'Angelo, VP, Verizon

American Express Example

Problem:
MSDs and Workers Comp costs

Solution:
1997: Ergonomics Program in Minneapolis operations became GAO case study; 2003 roll-out to entire company with strong focus on self-help, participatory web based features backed by experts as needed

Outcome:
79% reduction in WC claims; 50% reduction in claims; $7.2 company-wide savings in WC costs alone over 4 yrs

Source: http://www.ErgoAdvocate.com
Participatory Examples: Industrially Developing Countries

Asian Work Improvement Network

Tractor “Graveyard”

Take-Away Points

- Participatory ergonomics is a natural fit with operational excellence initiatives
- Ergonomists are in a unique position to contribute to or lead cross-functional improvement teams
- Ergonomics produces a great deal of value, well-beyond safety, health and wellness
- Participatory ergonomics fosters self-help, responsibility and accountability among all stakeholders
- Participatory ergonomics is sustainable
Thank You

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