



Environmental responsibility and business success. *Growing together.*

You're Looking Green: Increased sustainability as a business healthcare-cost reduction strategy

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Introduction and background: SymbioSus™

- **Mission:** To help small to medium-sized businesses increase profits and competitive advantage by integrating environmental sustainability actions with core business operations
 - **Reduce** risk, cost, energy/resource use, waste, and environmental footprint
 - **Increase** resource efficiency, customer, employee, and community satisfaction, and profits
- Help organizations assess, plan, implement, measure, and report improvements that benefit:
 - People, planet, profit
- We work with wide range of companies and industries, and scale projects to meet the specific needs of each client.



Key topics

- Set the stage
- Current business environment
- Sustainability connection – high level
- Specific sustainability benefits regarding business healthcare costs
- How to go forward



Today's discussion will NOT:

- Give a detailed recap / update on healthcare reform policy, law & implementation
- Claim to show how to offset or eliminate ALL employee healthcare costs



Today's discussion WILL:

- Demonstrate yet another triple-win benefit of a good sustainability effort by any organization
- Illustrate several actions that can be taken as part of a solid sustainability program, that can also help to:
 - Increase health & productivity of employees
 - Reduce healthcare costs, absenteeism, lost work days, etc.
 - Reduce costs elsewhere, to offset healthcare costs that can't be reduced / avoided



Current business environment

- Great Recession & tenuous recovery
- Business resilience & cost management still vital
 - Overall costs
 - Healthcare cost impact disproportionately large for small & mid-size companies
- High & rising healthcare costs
 - Uncertain environment re: healthcare cost reform
- Businesses seeking solutions



Current healthcare environment

Leading Causes of Death in U.S., 2007 data¹

Cause	# Deaths	Sustainability Aspect
Heart Disease	616,067	Air pollution can strain cardiopulmonary system
Cancer	562,875	Toxins/carcinogens in workplace/medical facility/food
Stroke	135,952	
Chronic lower respiratory diseases	127,924	Air pollution, ozone, indoor/outdoor air quality impact
Accidents	123,706 (37,261 car accident deaths)	Workplace safety/conditions; car travel impacts & risks
Alzheimer's Disease	74,632	
Diabetes	71,382	Dietary/food choices
Influenza & Pneumonia	52,717	Reducing communication of infectious diseases
Nephritis, nephrotic syndrome	46,488	
Septicemia	34,828	

* Latest data available; car accident deaths are 2008 data

- Indication of key health impacts, some with sustainability connection (in bold green)
- Clearly not all workplace-related
- It's about more than deaths as well...



Example of workplace impacts

2007 study (2003 data) in Journal of Occupational & Environmental Medicine:²

- Lost work days due to illness & injury result in:
 - Nearly \$63 billion in costs due to lost work and productivity²
 - Average of \$1,560 per year in lost productivity per worker²
 - Inflation-adjusted to 2010: \$72 billion and \$1,790 per worker per year
 - Only includes *lost* work days; doesn't include lost productivity *during* work days due to health-related issues



**Where does sustainability
fit into all of this?**



Sustainability: The 21st-century definition

Sustainability

The ability to meet today's economic, environmental, and social needs without compromising the ability of future generations to meet theirs.¹

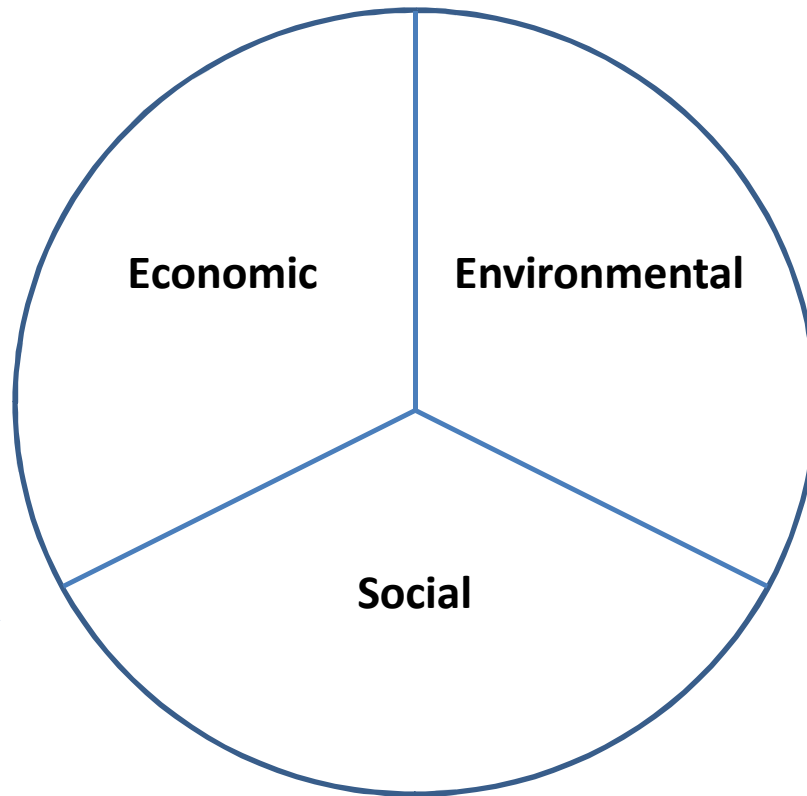
A balanced focus on “people, profits, and planet”



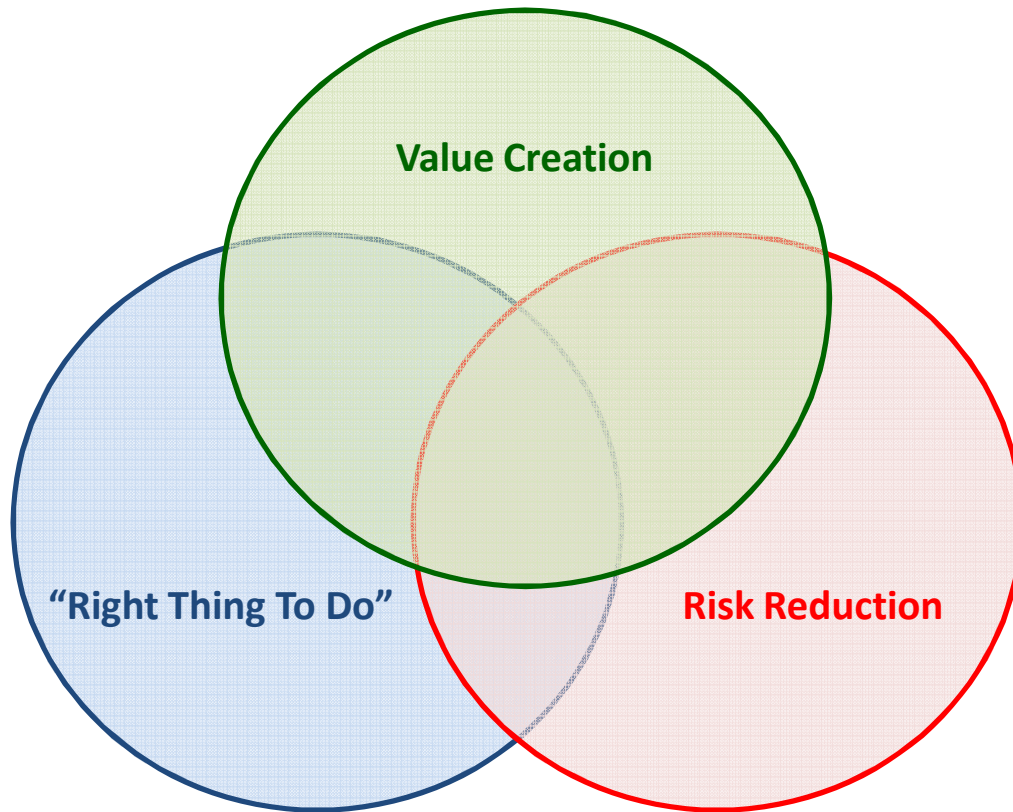
Brundtland, G. H. (1987). *Our common future: The World Commission on Environment and Development*. Oxford, U.K.: Oxford University Press.



Sustainability: Critical to survive & thrive into future



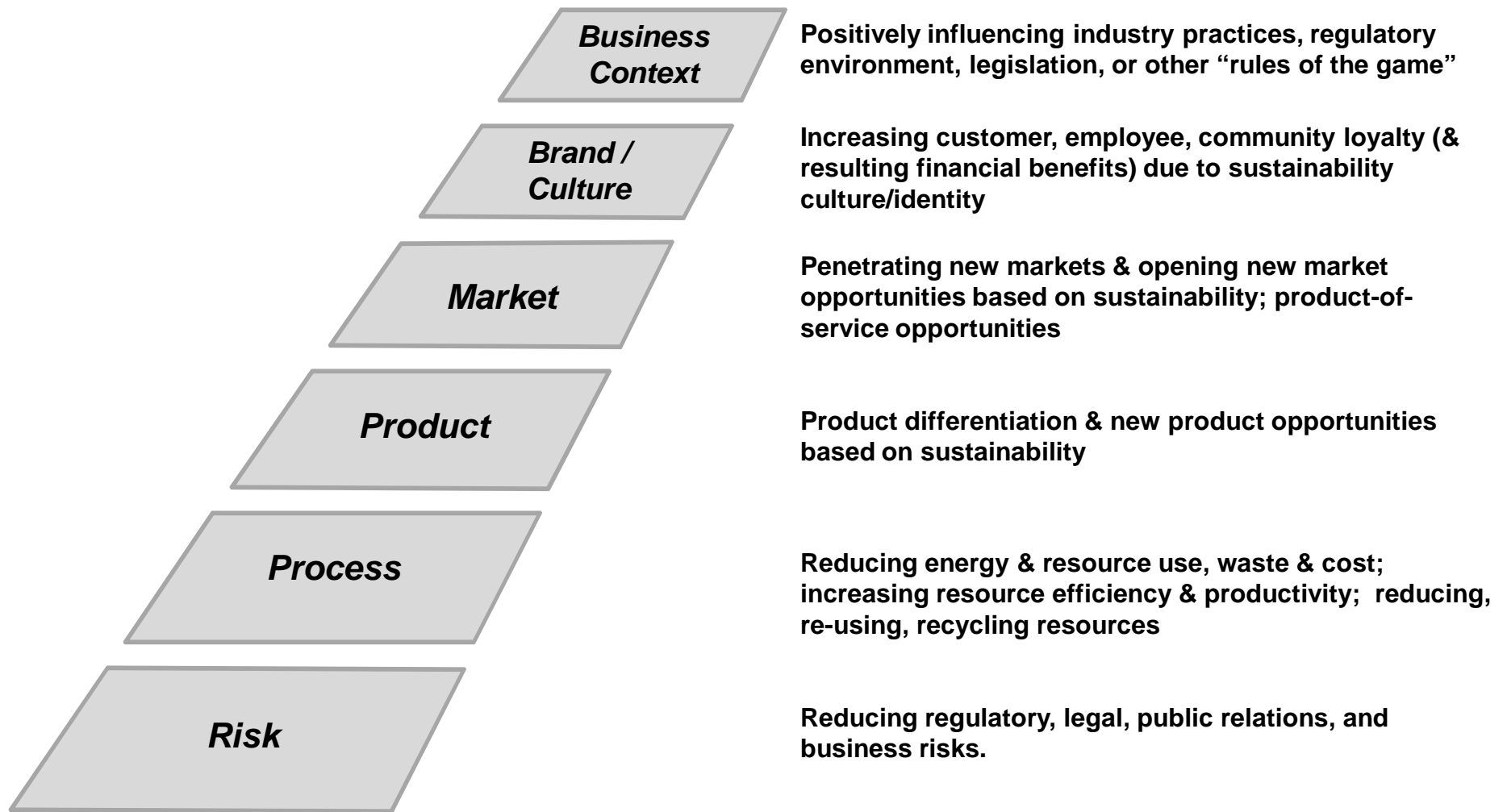
Various reasons for pursuing sustainability



- Businesses pursue sustainability for any or all of these reasons
- Choose any 1, 2, or all 3
 - Each are valid
- Business tends to prioritize RR & VC over RTTD – *AND THAT'S OK*
 - There must be – and is – a business case for sustainability



Six sources of business value⁴ from sustainability



Laszlo, C. (2003). *The sustainable company: How to create lasting value through social and environmental performance*. Washington: Island Press.



The symbiosis between environmental responsibility and human health. . . .

- Good healthcare management and sustainability have in common:
 - A ***proactive*** focus on ***well-being***, over the ***long term***
 - Wise up-front decisions – and sometimes reasonable investments – provide:
 - Improved well-being
 - Some short-term and some long-term savings
 - Both hold as a core tenet: ***“First, do no harm”***



Sustainability aspects that can also improve employee health & reduce related costs



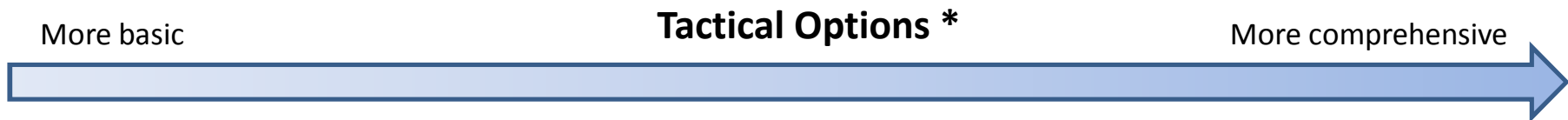
Increased day-lighting

- Reduced length of hospital stay (LOS) for hospital patients in sunlit rooms.
 - Depressed patients: 13% reduced LOS⁵
 - Surgery patients: 26% reduced LOS⁵
 - Gynecology patients: 41% reduced LOS⁵
- 20% performance improvement for students in more day-lit classrooms⁵
- 7% improvement in worker productivity at Herman Miller after moving to a green facility with high day-lighting⁵



Increased day-lighting

<u>Related sustainability aspect</u>	<u>Overall benefits</u>	
Electricity / lighting assessment & optimization	<ul style="list-style-type: none"> • Reduced electricity use • Reduced costs • Reduced GHG emissions 	<ul style="list-style-type: none"> • Reduced air pollution • Increased productivity • Positive PR value



Revised floorplan

Updated workstations

Solar tubes, etc.

Updated windows, shades

Full lighting assessment / retrofit

Green / LEED design for new or renovated spaces

* Only examples of options that have an impact on day-lighting are shown



Indoor air quality

- EPA:
 - “Americans spend about 90% of their time inside, where concentrations of pollutants are often much higher than those outside”⁵
 - “Thousands of chemicals and biological pollutants are found indoors, many of which are known to have significant health impacts both indoors and in other environments.... Known health effects of indoor pollutants include asthma; cancer; developmental defects and delays, including effects on vision, hearing, growth, intelligence, and learning; and effects on the cardiovascular system.”⁵
 - EPA report to congress:⁶
 - Improved air quality can result in higher productivity and fewer lost work days
 - EPA estimates that poor indoor air may cost U.S. ‘tens of billions’ annually in lost productivity & medical care
- “Research shows that indoor air quality is associated with respiratory diseases, employee absenteeism, and losses in productivity.”⁵
- Lawrence Berkeley National Lab Study: “Improvements to indoor air quality could save U.S. businesses \$58 billion in sick time and yield \$200 billion in employee performance improvement.”⁵



Sick building syndrome (SBS)

- “Frequent contributor to short-term or chronic illness.”⁵
(Healthcare Without Harm)
- Estimated 30% of U.S. workers suffer health problems from SBS.⁶
- SBS: poor indoor air quality due to:⁶
 - Inadequate ventilation
 - Chemical contaminants / toxins from indoor sources (adhesives, paints, materials)
 - Chemical contaminants from outdoor sources (air pollution, sewer systems)
 - Biological contaminants (dust, pollen, mold)
- Improved indoor air quality can reduce SBS risk by 20 – 50%⁶
 - Allergic & asthmatic incidents decrease by 8-25% in green buildings⁶



Indoor air quality improvement benefits

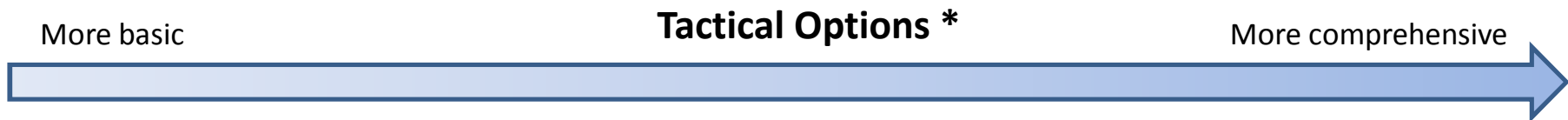
- Bronson Methodist Hospital (MI) study:
 - Green design practices & improved air quality resulted in 11% decrease in nosocomial infections & 7% decrease in nursing turnover⁵
- U. of San Diego study:
 - Tenants in ‘green’ offices reported decrease in average annual sick day usage per employee of 2.88 days⁶
- California Energy Commission study:
 - Increased ventilation associated with 4-17% performance improvements and 9-50% reduction in illnesses⁶

“There is a very large body of technically sound studies and documentation linking health and productivity with specific building design & operation attributes—e.g., indoor air quality and tenant control over work environment, including lighting levels, airflow, humidity, and temperature. It is clear that green building measures that improve these attributes increase worker comfort, health, well-being, and measured productivity”⁵



Indoor air quality

<u>Related sustainability aspect</u>	<u>Overall benefits</u>
HVAC / indoor air quality assessment & optimization	<ul style="list-style-type: none"> • Reduced electricity use (A/C) • Reduced heating fuel use • Reduced costs • Reduced GHG emissions • Improved indoor air quality • Increased productivity • Reduced sick days • Positive PR value



More basic					More comprehensive
Open windows	HVAC filter replacement	HVAC filter upgrade	Remove / reduce / replace VOC's, toxics, substances of concern (paint, carpet, furnishings, etc.)	Enhanced insulation / use of passive heating & cooling	HVAC optimization / upgrade
	Remove /replace toxics (cleansers, solvents, etc.)				

* Only examples of options that have an impact on indoor air quality are shown



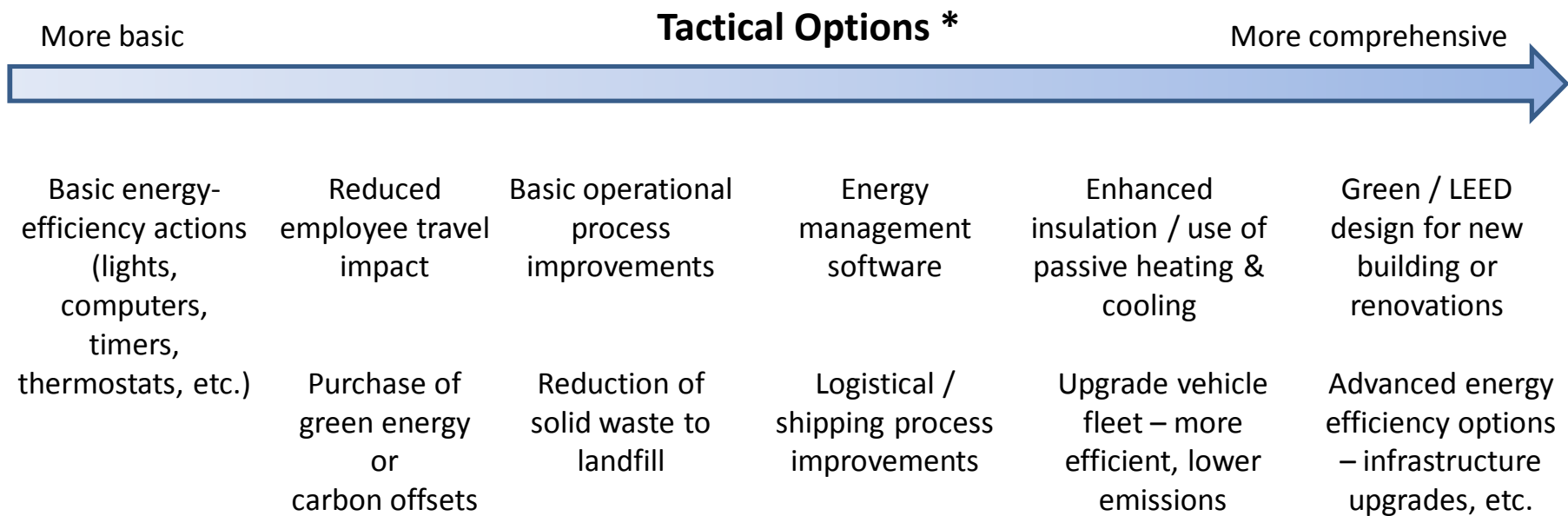
Outdoor air quality

- Estimated 70,000 early deaths in U.S. due to air pollution⁷
 - Equal to number of deaths from breast & prostate cancer combined⁷
 - Twice as many deaths as from car accidents⁸
- 30% of annual U.S. medical costs estimated to be related to air pollution⁹
- EU study: 25 EU cities in 12 countries, representing 39 million people:⁹
 - Only 1 city (Stockholm) met WHO recommended level for fine particulate matter (10 micron/m³)⁹
 - “Curbing pollution to WHO standards of fine particulate pollution throughout Europe could save 19 000 lives per year, add almost 2 years to local life expectancy for people aged 30 years and older, and save €31.5 billion in health costs and work absenteeism.”⁹
- American College of Allergies estimates 50% of all illness is caused or aggravated by air pollution.⁶
- Studies have linked fine particle air pollution to the following in southern CA alone:¹⁰
 - 6,200 early deaths
 - 2,400 hospitalizations
 - 980,000 lost work days



Outdoor air quality

<u>Related sustainability aspect</u>	<u>Overall benefits</u>
Reduced fossil fuel use; reduced emissions (GHG, toxins, particulate matter)	<ul style="list-style-type: none"> • Reduced emissions – GHG, toxins, particulate matter • Reduced energy use per unit of output • Reduced costs • Reduced air pollution • Increased productivity • Reduced health risks, reduced sick days • Positive PR value



* Only examples of options that have an impact on outdoor air quality are shown



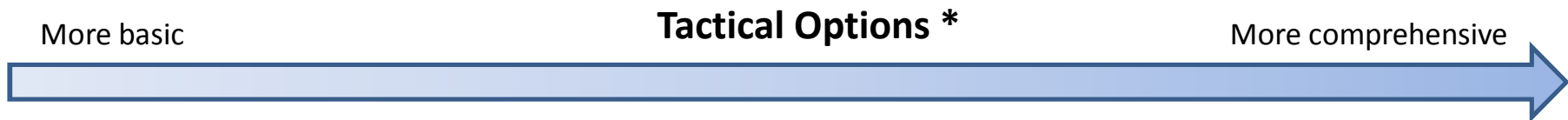
Toxins / hazardous chemicals

- “The cleaning products we were using before caused the employees to call in sick a lot.... Their eyes were all red, and different illnesses were happening.” After implementing the ‘Greening the Cleaning’ program, it all went away, and our workers’ compensation claims went down.” (Deirdre Imus, Hackensack University Medical Center, New Jersey)⁵
- Discovery Health Center (NY) found improved health & job satisfaction of its environmental service workers after introducing green cleaning products:
 - “There’s a sort of worker-respect aspect of green cleaners that sends a message to a group of people who generally feel undervalued, that somebody actually cares about their occupational exposure and the materials they work with. It makes them more energized to do their jobs, the way respect energizes all of us.” (Patrick Dollard, CEO)⁵
- “I asked [the members of the product committee], ‘If we had one mercury spill, what would it cost for a hazmat team to remove it?’ And I researched products that would work just as well.”⁵ (Kai Abelkis, Boulder Community Hospital)
 - What’s the answer for your organization?



Toxins / hazardous chemicals

<u>Related sustainability aspect</u>	<u>Overall benefits</u>
Toxins / hazardous substances assessment & action plan	<ul style="list-style-type: none"> • Reduced toxins exposure • Reduced regulatory, PR risk • Reduced sick days • Increased indoor air quality • Increased productivity • Increased employee satisfaction • Positive PR value



Remove /replace toxic cleansers

Enhanced ventilation

Remove / replace toxic solvents, manufacturing substances

Remove / reduce / replace VOC's, toxics, substances of concern (paint, carpet, furnishings, etc.)

* Only examples of options that have an impact on toxins/hazardous chemicals are shown



Healthy, local, organic food

- Conventionally-grown (non-organic) food:
 - Less nutrients¹¹ – some debate over this
 - Grown WITH chemical fertilizers, pesticides, herbicides, preservatives, hormones
- Researchers found >280 chemicals in umbilical cord blood¹²
 - 180 known carcinogens, 217 toxic to brain or nervous system, 208 shown to cause birth defects or abnormal development in animal tests¹²
- “Israeli researchers have linked symptoms such as headaches, tremor, lack of energy, depression, anxiety, poor memory, dermatitis, convulsions, nausea, indigestion and diarrhoea with dietary intakes of pesticides.
- Belgian research has found that women diagnosed with breast cancer are six to nine times more likely to have the pesticides DDT or hexachlorobenzene in their bloodstreams compared to women who did not have breast cancer.
- Hawaiian researchers following 8,000 people for 34 years have found that increasing consumption of conventional fruit and juice (and the pesticide residues they carry) raises the risk of Parkinson's disease.”¹¹
- British Medical Association: “Until we have a more complete understanding of pesticide toxicity, the benefit of the doubt should be awarded to protecting the environment, the worker, and the consumer—this **precautionary approach** is necessary because the data on risk to human health from exposure to pesticides are incomplete.”¹¹



Healthy, local, organic food

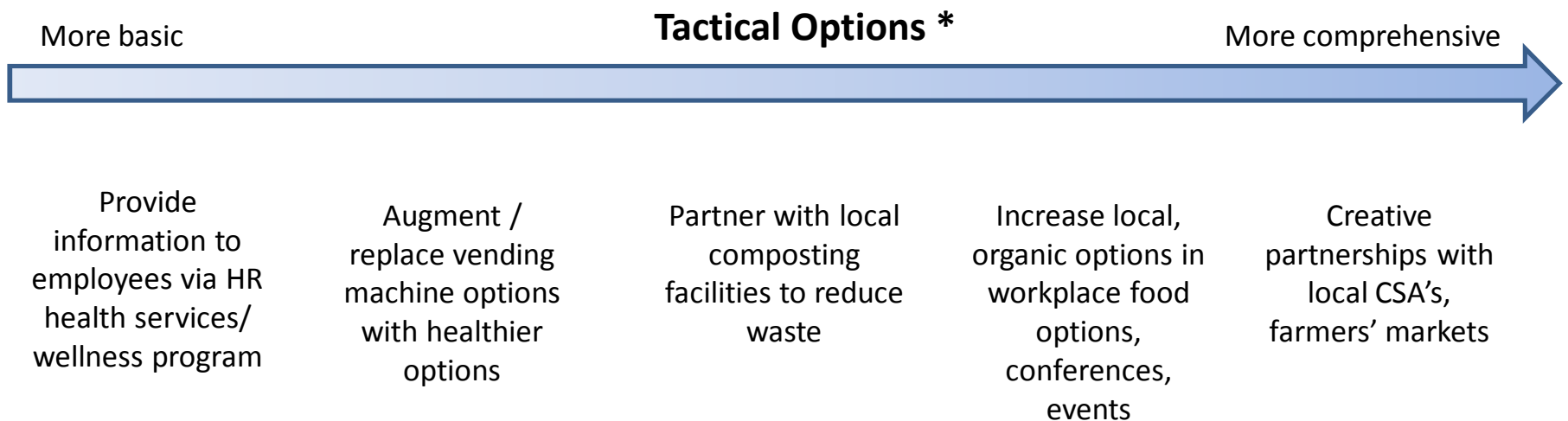
- Organic food:
 - Increased nutrients¹¹ – some debate over this
 - Grown WITHOUT chemical fertilizers, pesticides, herbicides, preservatives, hormones
 - Tastes better – people may be more inclined to eat more healthy options
 - Reduced environmental impact – may also make people more inclined to choose it

- “An early observational study revealed that boarding-school students eating predominantly organically for three years experienced a ‘very marked decline’ in colds and influenza, more rapid convalescence, excellent health generally, fewer sports injuries, a greater resilience to fractures and sprains, clear and healthy skin, and improved dental health.” ¹¹



Healthy, local, organic food

<u>Related sustainability aspect</u>	<u>Overall benefits</u>
Healthy, local, organic food	<ul style="list-style-type: none"> • Increased nutrition value • Reduced exposure to chemicals, pesticides, herbicides, hormones • Reduced GHG emissions • Increased employee health • Reduced sick days • Increased employee satisfaction • Positive PR value



* Only examples of options that relate to healthy, local, organic food are shown



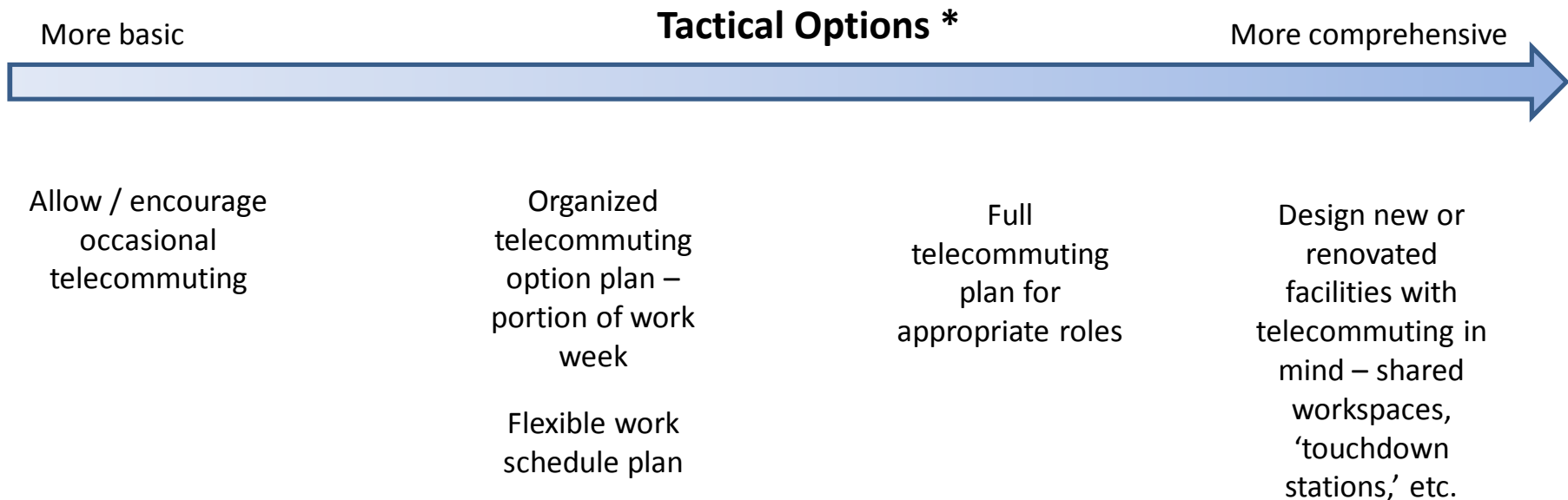
Telecommuting / Flexible work schedules

- Comp TIA survey: “Organizations that give their employees the flexibility to work from home profit from productivity improvements, lower operational costs, and from being able to find and retain talented workers.”¹³
- “Other advantages [beyond cost savings] of telecommuting that respondents cited included:
 - The ability to hire the most qualified staff, regardless of where they live (39% of respondents)
 - Higher employee retention rates (37%)
 - Decrease in employee stress (25%)
 - Ability to reduce auto emissions (17%)”
- Cisco survey (~ 2,000 employees & managers):¹⁴
 - Estimated \$277 million in annual savings/productivity improvements
 - Estimated 47,000 metric tons carbon emissions reduction
 - Estimated \$10 million/year in fuel cost savings
 - 60% of travel time saved by telecommuting spent working; 40% on personal time
 - Respondents reported: improved productivity (69% of respondents), quality (67%), timeliness (75%), quality of life (80%), same or better ability to collaborate (83%), telecommuting important to overall satisfaction (91%)



Telecommuting / Flexible work schedules

<u>Related sustainability aspect</u>	<u>Overall benefits</u>
Employee travel assessment & optimization; work-life balance assessment	<ul style="list-style-type: none"> • Reduced emissions – GHG, particulate matter, toxins • Reduced fossil fuel use • Increased productivity • Increased employee satisfaction • Reduced stress • Positive PR value



* Only examples of options that relate to telecommuting are shown



Public transportation

- Key benefits:
 - Reduced emissions – particulate pollution, GHG's
 - Contributes to reduced air quality health impacts
 - Increased physical activity
 - Walk from public transit stop
 - Bike/walk to work if feasible
 - Reduced stress
 - Reduced risk of car accident

Car accident statistics 2008: 5.8 million reported car accidents⁸
- 75% of accidents within 15 miles of home¹⁵

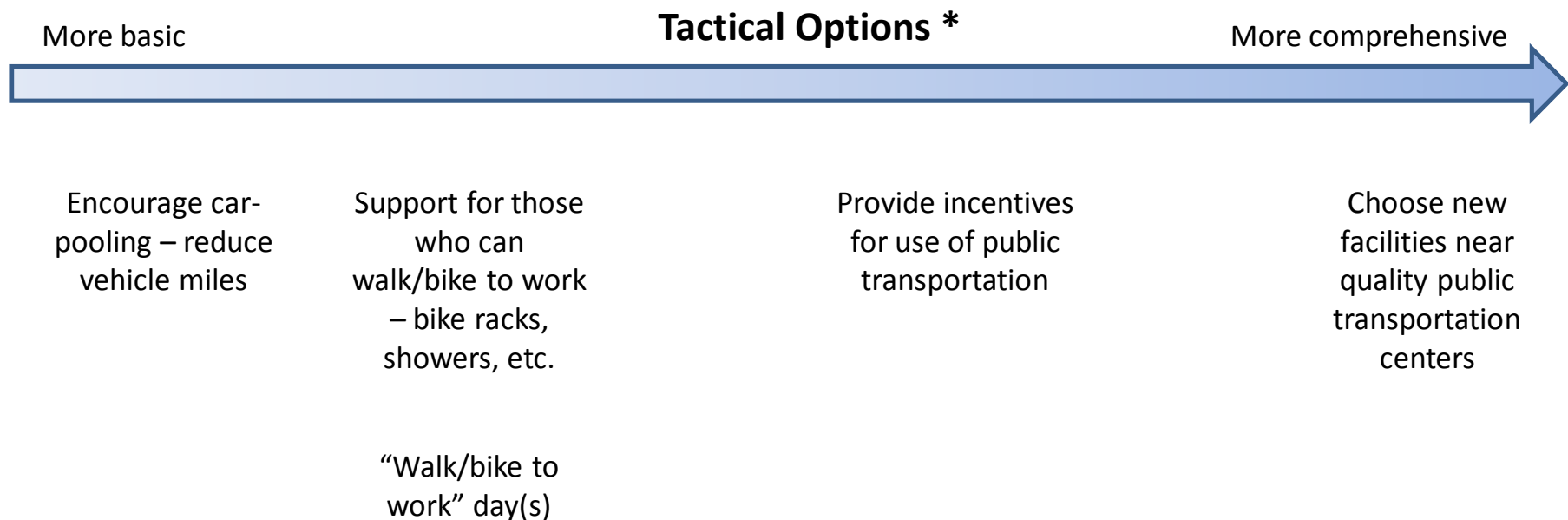
	# Car Accidents	# Injuries/deaths	Rate per 100 million vehicle miles
Causing injury	1.63 million	2.35 million	63
Causing death	34,017	37,261	1.1

Risk is small, but worth reducing as an ancillary benefit to sustainability program



Public transportation

<u>Related sustainability aspect</u>	<u>Overall benefits</u>	
Increased public transportation use	<ul style="list-style-type: none"> • Reduced emissions – GHG, toxins, particulates • Reduced fossil fuel use • Reduced cost for travelers 	<ul style="list-style-type: none"> • Reduced stress • Increased employee health (bike/walk to work) • Reduced risk of accident • Positive PR value



* Only examples of options that relate to public transportation are shown



Sustainability is a benefit, not a cost

- Ochsner Health System:⁵
 - Major lighting retrofit reduced energy consumption 20%, saving \$1.2 million/year in electricity
 - Using river water for a/c system instead of traditional cooling towers saved \$3 million in electricity costs
 - Converting thousands of pump & suction motors with variable speed options reduced energy use by \$350,000/yr

- USGBC & CA Sustainable Building Task Force found:⁵
 - Green building investment of 2% of construction costs yielded savings of 10X initial investment over life of building (20 yrs). Financial benefits include:
 - “lower energy, waste disposal, and water costs, lower environmental and emissions costs, lower operations and maintenance costs, and savings from increased productivity and health,”



Sustainability is a benefit, not a cost

- Oregon Health & Science University Center for Health & Healing:⁵
 - Integrated green design elements resulted in building that uses 60% less energy than a code-compliant building
 - Reduced mechanical, electrical, plumbing costs by 10% (\$3.5 million)
 - Capital costs were \$1.86 million, for net capital savings of \$1.64 million
 - Annual energy cost operating savings of \$600,000 vs. Oregon Energy Code compliant bldg.
- Most efficiently-operated senior/assisted living communities use 30% less energy than their competition.¹⁶
- “healthier products reduce the exposure to elements that can have serious negative long-term effects on those people who come into contact with them.” ... the use of such materials as nontoxic cleaners and paints. . . **“can translate into something as simple as reducing insurance premiums down the road.”**⁵

(Tim Sanchez, CFANAD)



Example of potential health-related cost savings

- Assumptions:
 - \$50 million revenue; 100 employees
 - Avg. salary \$50,000 (\$75,000 fully-loaded)
 - U.S. avg. of 5.6 sick days/employee/yr¹⁷

- Lost productivity to sick days = \$ 168,000 per year

Potential Savings %	Reduction in Lost Days / Employee / Year	Potential \$ Savings (company-wide)
10%	0.56	\$16,800
20%	1.12	\$33,600
30%	1.68	\$50,400
40%	2.24	\$67,200
50%	2.80	\$84,000

- Doesn't include savings from:
 - Increased productivity while *at work*
 - Potential for reduced healthcare claims & premiums
 - Savings from other sustainability aspects (energy costs, waste/scrap, reduced costs of recruiting/hiring, retention, etc.)



How to move forward

- **DON'T** need to do a complete re-build / retro-fit of existing building or operations
- Assess business value chain & operations with sustainability lens
- Prioritize areas of environmental impact based on company-specific criteria
 - Employee health impacts may be a criteria if so choose
- Prioritize solutions based on company-specific criteria, situation & resources
- Develop & implement appropriately-scaled sustainability plan
 - Some guidelines can be found here:
[http://www.symbiosus.com/cmsdocuments/Webinar_Slides - Sustainability Planning.pdf](http://www.symbiosus.com/cmsdocuments/Webinar_Slides_-_Sustainability_Planning.pdf)



Looking green . . .



Or . . .



Looking green . . .



Or . . .



Thank you very much!

Questions / Discussion

For more information:

Reference & resources slides at end of presentation

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