5.5 System Thinking, for engineers only?

For Billie System Thinking is magic, for some it's complex mechanics, for Little Alien it is a moral stance.

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You said, you have recently learned a lot about complex systems and the related dynamics. Isn’t that a specialists and engineer’s topic. I’d say, we have more important things to care for in these fast moving times.

No no no!
Actual problems - no system thinking - no dynamic complex system understanding.
Scientists experts specialists - focus small sub-systems - small question - small answer.
School university - focus separate sub-systems - many small unconnected knowledge bits.
Politicians - leaders - small sub-system goals - not connected - no side effects - no feedback loops - no long-term dynamics - some personal agendas - some good intentions - no system thinking - bad results.

I don't get it. For me it's simple: Fix the parts, fix the system! If something is not working, some bad parts are the problem. So I'll try to identify and fix them.

Common misconception - understand pieces understand whole system - result bad bad bad.
Reality system thinking opposite - system problems mostly between parts - relationship problems - feedback loop problems - interaction problems.
Dysfunctional system structure - good functional parts - problems results bad - good parts later dysfunctional also.
Systemic results - individuals parts components - praise blame - feels rational - wrong wrong wrong.
Systems thinking - things behaviors emerge - relationships between parts - not good bad parts.

Wow, that's interesting! So I got it all wrong. If my soccer or basketball team is not winning, I should not focus on better players but on better player relationships.

Very true!
Bad player - run bad - shoot bad - game lost.
Better player - run better - shoot better - game lost.
Average players - dynamic positioning all players better - coordination between players better - collaborative moves better - game win.
Simplification yes - basic system truth yes - reality complex systems - complex relations structures interactions feedback loops - complex problems - complex system improvements - learn learn learn.

So I should go to a university to study system thinking and complex system design over years? But I do not want to become a systems engineer, I am a normal human being with all kinds of interests.

Specialist systems engineer - university - learn learn learn.
Everybody - correct basic understanding - observe experiment learn - daily life.
Normal people System Thinking.
Things not separate - things connected - actions cause effects - not one - many.
Output results bad - system design bad - change - output good.
Local detail bad - change - local detail better - global failure - whole system output failure.
Incentives bad wrong - system behavior output bad - incentives good right - system behavior output good.
Big shift - wrong spot - small impact - small shift - right spot - big impact.
Complex dynamic system - predict behavior impossible - plan change success not work - small change observe adapt - small change observe adapt - learn learn learn.
Change system structure - long long long.
System Thinking moral stance - everybody responsible action effects - no thinking no excuse.
Work outcomes results - not work tasks - work shape environments complex dynamic systems always.
Be System Thinker - be solution enabler - not problem creator.

I am not sure, if I can do all this.

Start small - accept learn adapt - baby steps - more more more - System Thinker.
Make experiment - plant bean small pot window board.
Seed soil pot water sun - all connected.
System design bad - huge pot hard soil seed ground - pot fish tank wet wet wet - pot bathroom no window - bad result - not grow.
Detail bad - shady window - detail fix - pot outdoors - much sun - bird scratch - eat seed - failure.
Incentive bad - no interest plant - focus computer - no water - no care - failure.
Plant grow flat - need support - move towards wall - good support - less sun - not good - stick optimal spot - plant twine stick - success.
Plan lifetime water - install water machine - program lifetime watering - sun vary - no success - first water - observe soil humidity - next water - observe - adapt water quantity - learn.
Day one plant seed - water - day two no result - water more - day three no result - water more more - failure - patience - patience - patience - success.
Pot outside window board - tens floor - wind - pot fall - person sidewalk hit - disaster - full responsible not think - no excuse.

That's a nice example, yes I can do System Thinking for a small example like this. But how do I determine system boundaries. When thinking about planting a seed, I usually would not consider a person on the sidewalk part of my plant seed system.

System fundamentally no boundary - all things connected.
Practical system thinking - create practical boundaries - use minimal impact causality connection boundary - use low probability causality connection boundary - use experiences - use common sense.

Ok, got it. But how can I find the working mechanisms of a system in real life?

Look feedback loops - find incentives - identify consequences cause effect - not allow symptoms distract.

Examples feedback loops - ordinary life - simple - obvious - often not regarded.
Tiredness - bad sleep - more tiredness.
Clutter - stress - no energy declutter - more clutter.
Skip exercise - low mood - more skip exercise.
Check phone - poor focus - escape - more check phone.
Avoid inconvenient talk - more resentments - talk more inconvenient.

Example wrong incentives - ordinary life - simple - obvious - often wrong designed.
Doctor pay per visit - more visit - patients not more healthy.
Schools graded test scores - teaching focus test - poor focus curiosity - poor focus learn-to-learn - poor focus system thinking - poor focus change accept learn adapt.
Clicks reward news - focus outrage - poor focus accuracy - poor focus good news - poor focus complexity system dynamics context.
Attendance working hours payment - focus clock watching - poor focus results deliverables customer satisfaction business development.

Example symptoms not consequences focus - ordinary life - simple - obvious.
Chronic pain - painkiller - source pain remain - painkiller dependency more.
Toxic firm culture - fire bad employees - toxic culture remain - good employees leave.
Diet - slowing metabolism - hunger spikes - weight return.
Ordinary cold - antibiotic - resistance build - antibiotic stop working.

That is so interesting. So ignoring system dynamics is way more common than I thought. How come?

Often strong hidden agendas - underlying business interests - intentional support strengthen ignorance.
Sick patient - drug doctor clinic visit earnings - cured patient - no earnings.
Diet yo-yo cycles - diet product earnings - permanent weight loss - no earnings.
Anxiety outrage erotic - more clicks - longer sessions - more ad earnings - contentment - relaxation - facts - shorter sessions - less earnings.
Simple political answers - pretend confidence - more votes - complex answers - honest uncertainty - less votes.
Permanent check phone - seem very important - seem well connected - role model - main character - sometimes check phone - seem not important - seem poor connected - background character - nobody.

That means, incentives are often hidden and seemingly wrong incentives are not really wrong but intended by special interests?

Right.
Always look deeper deeper deeper - surface not - breaking news not - symptoms not - convenient conclusion not - deeper.
System Thinking - not convenient - not simple answers - not rock-hard certainty - not ignorance.
System Thinking - hard work - moral stance - interesting - intelligent - curiosity - habit - fun.

I like that. I like to focus on what's really going on beyond breaking news, headlines, symptoms and click bait. But enough for now.