

# CEO REPORT

The Psychology of the Unknown:  
What Great Problem-Solvers do  
When They Get Stuck

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## Executive Summary

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Much of reality is made up of the “**unknown**”, the unfamiliar, rare, novel events and situations – often challenging and violating our current taken-for-granted assumptions of what works and what doesn’t work. This can be a source of great anxiety or fear as it represents lack of control and certainty. We can choose to avoid or ignore it at our own peril particularly if it is perceived as threatening or overwhelming. Yet there are some who rise to the challenge by **thinking differently** about uncertainty and progress forwards.

This CEO Report is about tapping into the **psychological thought-processes** of how great problem-solvers see, interpret and makes sense of being stuck with complexity and what they do (*or fail to do*) to progress. To uncover these underlying thinking patterns, we administered a rigorous and systematic interview approach from clinical psychology called, Repertory Grid Technique (RGT). Our sample consists of **fifty (50) seasoned CEOs / Executives** spanning a wide range of industry sectors.

Seven (7) inherent latent themes emerged from our analysis as to what are the core drivers (**habits of mind**) that help executives **open up the alternatives** whenever they find themselves stuck with complexity:

Executives emphasized the importance of bringing a **Fresh perspective** through “reframing”, reimagining and reviewing the validity of current assumptions / expectations. They look at the issues from a different perspective, thinking around, collaborating, being open-minded and staying away from current (box) frameworks.

Thinking, feeling and acting “*as if*” you are the **Owner** (this is my problem, my life – so what am I going to do about it?). Here they expand the solution space by speaking to trusted parties in/outside their field for feedback; spending more time to understand the context, situation and stakeholder priorities; assessing risk levels, resistance forces, always anticipating (with early warning systems), and not accepting the fact that when they find themselves stuck, that they are stuck.

Showing **Connected-thinking** by breaking down the problem into solvable parts and see the underlying issues; being responsive to prevailing situations from multiple sources/ different perspectives, and the connection between reasons for action, uncertainties and the consequences of inaction.

Also featured prominently in our findings is the need for **Urgency with the end in mind**. Seeing the urgency, criticality and importance of moving forward, clearly visualizing the end-game, executing with strategic purpose / alignment, sizing up the strategic impact of the problem, making reference to other examples of successful cases and past learning.

**Leveraging off teamwork** to establish collective intelligence through regular discussions, exploration and reviewing of alternatives; and ensuring the team continually acquires new competencies to meet the demands of changing landscapes.

Being fully **In-the-zone** by having a persistent mentality (never giving up), careful and thorough analysis, harnessing my strengths and perceived strengths to gain momentum and campaign, having contingency plans, experimenting with trial and error; and remaining calm and positive even if the situation looks impossible.

And finally, the importance of **Reflective/ Reflexive Practice**. Literally walking away (for a while) and taking a step back to reflect/reflex deeply about the situation (of what we are doing and not doing), knowing where the pain-points and causes are, clear understanding of key performance indicators / critical success factors, and having faith in the process.

Taken together these seven drivers provide a powerful **framework** that help guide the thinking process when our visions of the world shrink. It fosters accelerated learning, constant renewal, resilience, holistic, and interconnected thinking that forms the foundation of the **rapid response system** used by our sample of 50 CEO / Executive problem-solvers. Cultivating them into your everyday practice will require time, patience, persistence and curiosity.

## Purpose and scope of study

Between June-December of 2022, we invited fifty (50) CEOs / Executives from across a wide range of industry sectors for one-on-one in-depth interviews to share their experience in dealing with complexity. In addition to completing a simple short survey on the topic prior to the scheduled meeting, all executives were informed that we would be using a highly structured and rigorous interview approach, grounded in clinical psychology, as a means to tap into their thinking process to better understand how they approached their toughest unsolved problems, issues and challenges (albeit successfully or not so successfully solved). Specifically, we were interested to elicit their recent experience (within the past 1-5 years) in terms of ***“when you find yourself stuck, what did you do (or failed to do) to better solve it?”***

*Some definitions for the purpose of this study:*

A **“problem”** is defined as a situation, person or thing that needs attention and needs to be dealt with or solved.

An **“issue”** is defined as a subject or problem that people are thinking and talking about.

A **“challenge”** is defined as (the situation of being faced with) something that needs great mental or physical effort in order to be done successfully and therefore tests a person's ability.

As such, in this study, **“complex problems, issues & challenges”** are those that are ill-defined, unstructured, non-routine, unknown, unfamiliar, unexpected, unanticipated, unplanned, unpredictable, unclear, unintended, rare, novel events and situations... (They may occur throughout our lives, love and career...).

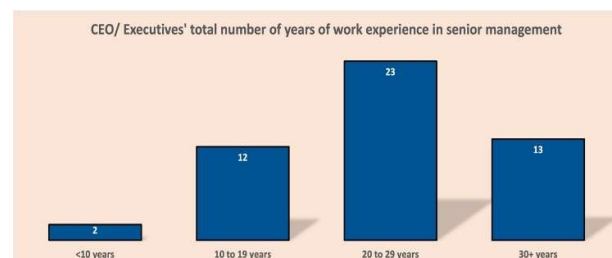
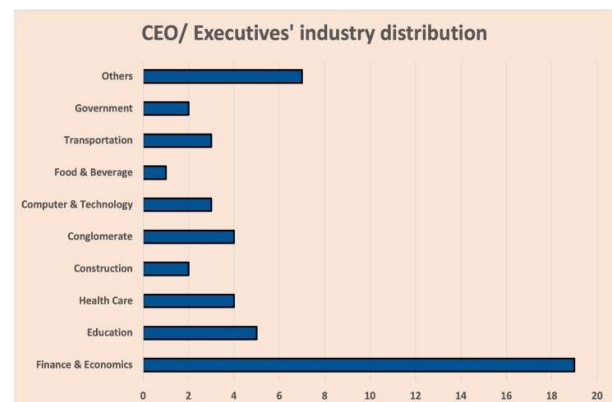
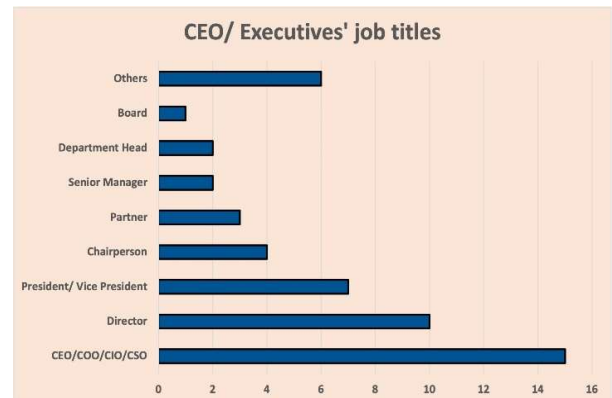
Being **“stuck”** means our ideas begin to stall, there is a tendency to cling onto our past habitual practices / routines; there is no progress, a stalemate, no new ideas, past solutions and approaches no longer considered as useful.

**“Successfully solve it”** means you would rate the outcome as being equal to or above 7 out of 10; and

**“Not able to successfully solve it”** means you would rate the outcome as being equal to or below 5 out of 10.

## Sample breakdown and preliminary findings

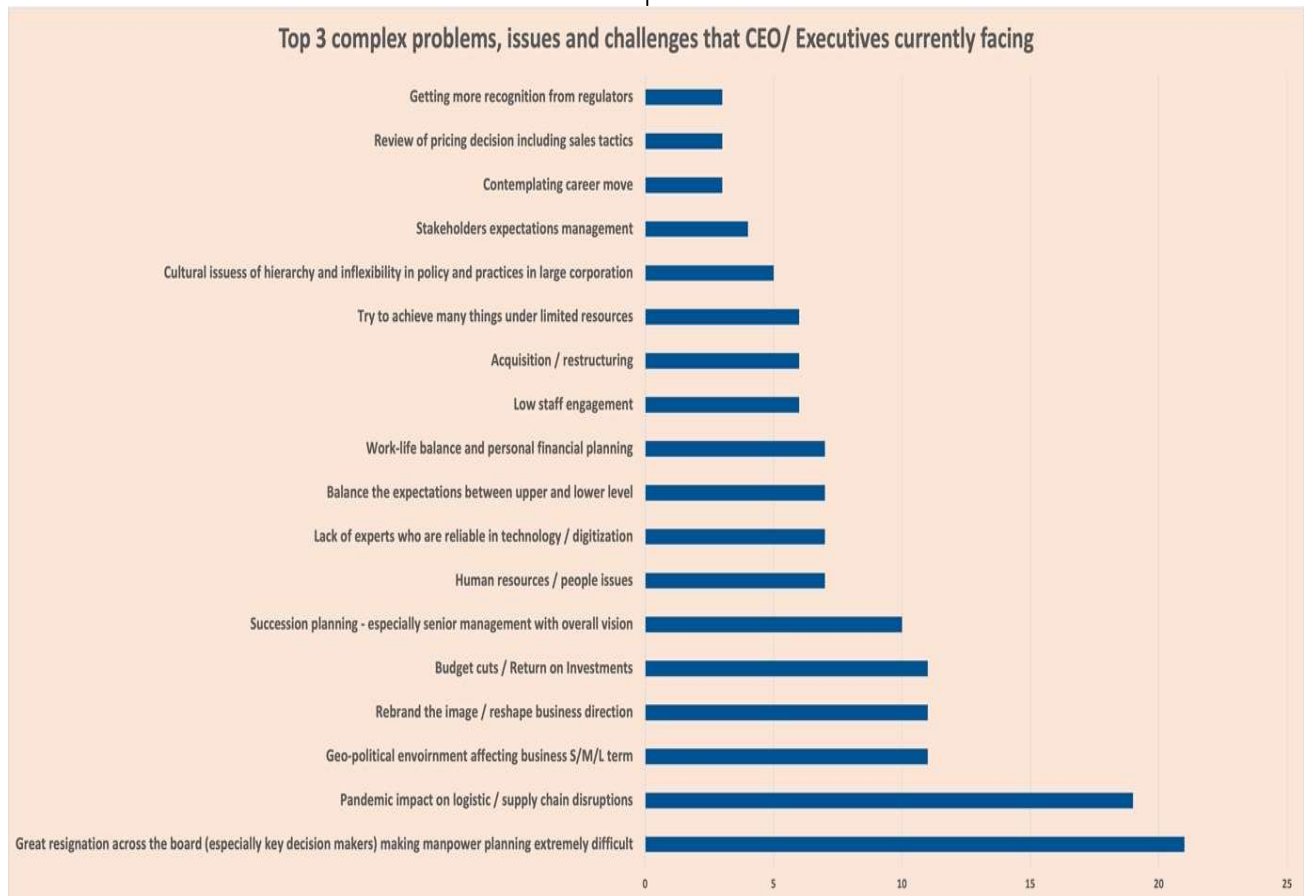
Our sample of experienced problem-solvers consist of 50 CEOs / senior executives from a broad range of industries (public, private, small, medium and large). They have an average of 32.5 years of work experience, 21.3 years of which in senior management roles and have worked in (on average) 3.7 different industries in their entire careers. Job titles ranged from Chairman of the Board to Chief Executive Officer, Senior Partner, Founder, Chief Operating Officer, to Philanthropist. Nineteen (19) executives were female and thirty-one (31) were male.



## What's keeping executives awake at night?

During the study period, we solicited a total of 147 key challenges CEOs / Executives were facing (from which 18 clusters emerged). Of utmost importance is the great resignation of personnel across the board (especially key decision makers) and this made manpower planning incredibly

difficult. The impact on logistics and supply chain issues, along with geo-political environment had clear repercussions for short-, medium- and long-term strategizing. All these issues also had impact on budget cuts, succession planning, corporate (re) branding, staff engagement, doing more with less and managing stakeholder expectations, inter alia.



## Executives' top three advice on what must be done to open up the alternatives

Prior to the more in-depth clinical psychology interviews, we also surveyed CEOs / Executives on their top three (3) "must do" (advice) if we were to successfully open up the alternatives whenever we get "stuck" with complex problems, issues and challenges. To this question, we solicited a total of 212 responses with some clear overlap and consistency in their counsel – 25 clusters emerged. The most frequently occurring advice was the need to expand

the solution space by speaking with (trusted) parties (and with people more experienced). Another critical approach is to execute with strategic purpose and alignment. Brainstorming creative alternatives (solving issues at both ends), ensuring that the root causes of the problem were understood, the importance of staying calm, positive and upbeat, the value of positive "re-words" (such as reframing, re-examining, reviewing, rethinking), taking a step back to reflect deeply; to even walking away from the problem (for a while), were all critical based on executives' past experience.

### Top 3 MUST do to open up alternatives when CEO/ Executives get stuck



## Results from clinical psychology interviews

Going beyond conventional executive surveys, our in-depth face-to-face clinical psychology interviews further reveal and manifest the internal thought-processes of what seasoned CEOs / Executives do (*or failed to do*) to better solve complex problems, issues and challenges – especially when they find themselves stuck. From 50 executives (each interview averaged 50 minutes), we elicited a total of 300 responses ranked in terms of their frequency. The table in page 5 provides an aggregated detail breakdown on the range of bi-polar constructs elicited from executives based on their experience in dealing with complexity. Of particular note are the responses to the left of the table – which signifies what they did to open up the alternatives when they find themselves stuck. To the right of the table represent what executives failed to do (to open up the

alternatives) – which inevitably did not allow them to progress (and hence remained stuck).

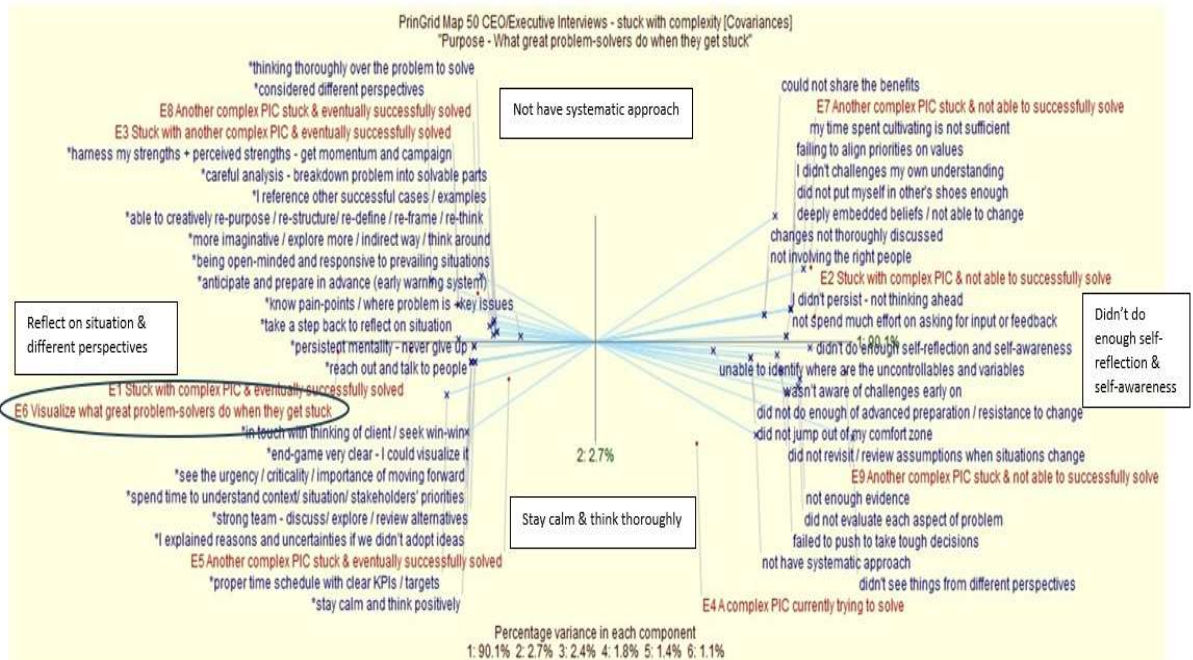
The type of actions that allowed executives to progress from being stuck ranged from being more imaginative (explore more, indirect way, thinking around), being clear on the end-game / visualizing, seeing the sense of urgency / importance of moving forward, taking a step back to reflect, knowing the pain-points of where the problem is, to staying calm and positive in the face of uncertainty and ambiguity, amongst others. On the other hand, complex problems, issues and challenges are not successfully solved when executives exhibited the following range of actions: fail to challenge their own understanding, didn't jump out of their comfort zone, not spending enough effort to ask for feedback, didn't do enough self-reflection / self-awareness, unable to identify where are the uncontrollables, to didn't see things from different perspectives, inter alia.



CEO / Executives: In terms of "when you find yourself stuck, what did you do (or failed to do) to better solve it?"

Elicited Bi-Polar Constructs		Construct Frequency
What helps open up the alternatives	What doesn't help open up the alternatives	
C1 *I explained reasons and uncertainties if we didn't adopt ideas	↔ I didn't challenge my own understanding	22
C2 *harness my strengths + perceived strengths - get momentum and campaign	↔ failed to push to take tough decisions	22
C3 *more imaginative / explore more / indirect way / think around	↔ did not jump out of my comfort zone	21
C4 *spend time to understand context/ situation/ stakeholders' priorities	↔ did not put myself in other's shoes enough	20
C5 *careful analysis - breakdown problem into solvable parts	↔ did not evaluate each aspect of problem	19
C6 *being open-minded and responsive to prevailing situations	↔ did not do enough of advanced preparation / resistance to change	19
C7 *end-game very clear - I could visualize it	↔ changes not thoroughly discussed	18
C8 *persistent mentality - never give up	↔ I didn't persist - not thinking ahead	17
C9 *reach out and talk to people	↔ not spend much effort on asking for input or feedback	15
C10 *in touch with thinking of client / seek win-win	↔ failing to align priorities on values	15
C11 *anticipate and prepare in advance (early warning system)	↔ wasn't aware of challenges early on	14
C12 *proper time schedule with clear KPIs / targets	↔ my time spent cultivating is not sufficient	13
C13 *see the urgency / criticality / importance of moving forward	↔ deeply embedded beliefs / not able to change	13
C14 *take a step back to reflect on situation	↔ didn't do enough self-reflection and self-awareness	12
C15 *strong team - discuss/ explore / review alternatives	↔ not involving the right people	11
C16 *know pain-points / where problem is - key issues	↔ unable to identify where are the uncontrollables and variables	11
C17 *thinking thoroughly over the problem to solve	↔ not have systematic approach	10
C18 *I reference other successful cases / examples	↔ not enough evidence	9
C19 *considered different perspectives	↔ didn't see things from different perspectives	7
C20 *able to creatively re-purpose / re-structure/ re-define / re-frame / re-think	↔ did not revisit / review assumptions when situations change	6
C21 *stay calm and think positively	↔ could not share the benefits	6
Total number of elicited constructs from 50 CEOs/Executives		<b>300</b>

Collective Cognitive Map of 50 CEOs/Executives: What Great Problem-Solvers Do When They Get Stuck



- Vector lines represent the shared bi-polarity in construing used by CEOs/Executives to describe their experience when dealing with complexity; Each construct has a preferred side marked with an "\*" indicating executives' choice of what helps them open up the alternatives when they find themselves STUCK with complexity.
- Look at these bi-polar construct lines near any one of the 9 "Role title" Elements (E1, E2, E3...E9) to see how they are described based on executives' experience with them when dealing with complexity – specifically – **what they do (or fail to do) when they find themselves stuck, so that they can progress.**
- The spread in psychological space is generated based on executives' ratings of their 9 Role title elements using their own elicited bi-polar constructs generated from our interviews. The overall output is generated using Repertory Grid Clinical Psychology software. This collective map shows we captured **92.8%** of the Total Percentage of Variance of how CEOs/Executives are thinking when they get stuck with complexity.
- Abbreviation PIC stands for a complex Problem, Issue or Challenge.

Going beyond these results, and grounded on each CEO / Executives' clinical interviews aggregated as shown in the table, we produced an overall collective cognitive map (spread in psychological space) on how they were thinking (what they did and fail to do) when they find themselves stuck with complexity. While each executive experienced their own set of complex problems, issues and challenges, our systematic and rigorous use of role title elements (E1, E2, E3... E9) (shown in red font) to elicit these complex items allows us to present this group map for demonstration purposes. The map provides some simple steps in how to read the results. Of particular importance are the bi-polar construct lines (perceptions of executives' actual experience when dealing with complexity) and their relation to the location of the nine (9) element types of problems, issues and challenges (shown in red font). To the left of the map are the preferred construct poles where executives say what really helped them progress from being stuck; to the right of the map are construct poles that hindered their progress.

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## Seven emerging latent themes – inherent thinking patterns of great problem-solvers

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Taking together all the key findings from the present study, we conducted further meta-analysis of the dataset with four expert independent coders and discovered some noticeable inherent latent themes emerging that underpins what great problem-solvers do when they find themselves stuck with complexity. These latent themes, cross-checked with extant and disparate bodies of knowledge (in practitioner and scientific research) make explicit, distinct clustering around seven (7) themes.

Specifically, and grounded in executives' own language, latent theme one consists of issues of brainstorming creative alternatives / solving problems from both ends, reframing the challenge/ root cause/ re-examining assumptions, re-thinking, re-framing, looking from the "outside-in", and staying open-minded, all suggests the need to bring a **Fresh perspective** to help open up the alternatives. The next core latent theme centered around issues of spending

time to understand the context / situation / stakeholder, reaching out to talk to people to expand the solution space, assessing the risk level and "resistance forces", in touch with the thinking of clients and anticipating and being prepared in advance (setting up early warning systems). These issues suggest the importance of thinking, feeling and acting 'as if' you are the **Owner**. The third latent theme emphasized the importance of **Connected-thinking** to open up the alternatives when executives find themselves stuck with complexity: breaking down the problem into solvable parts, understanding the underlying issues and the views/needs of multiple stakeholders, considering different perspectives, and being open-minded and responsive to prevailing situations. Another set of very different responses merged around issues of executing with strategic purpose and alignment, referencing other successful cases and examples, ensuring the end-game is clear and visualized, persisting and setting the urgency, criticality and importance of moving forwards. These issues suggest the need for **Urgency with the end in mind**. Latent theme five anchors on **Leveraging off teamwork**: the value of discussing, brainstorming and exploring alternatives with your team and ensuring they have the necessary skills to perform – indeed problem-solving is a team sport.

Yet another set of clustering merged around issues of careful analysis, thinking thoroughly around the problem, persistent mentality (never giving up), having contingencies in place, the importance of trial and error/ testing the waters and staying calm and positive – suggesting the need to be fully **In-the-zone** to acquire a deep sense of the complexity at hand. A seventh core latent theme seen as critical in helping executives open up the alternatives when they find themselves stuck with complexity is the need to be **Reflective/ Reflexive** in their practice. This cluster consists of issues relating to taking a step back to reflect deeply about the situation, having faith, ensuring there are time schedules in place with clear KPIs and targets, knowing where the pain-points are, understanding the root causes of the problem, to even walking away from the problem (for a while).

These seven (7) very different and distinct sets of latent themes complement and culminate into an integrated whole. They tell us that there are seven



distinct yet interrelated ways of dealing with your toughest unsolved problems, issues and challenges; advocating both differentiation and integration to help you reach insights. It suggests a more holistic approach to thinking rather than relying on one or two approaches when you are stuck in the thick of things. Taken together, these findings represent **timely and timeless** insights for a better world.

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## Concluding reflections on the study

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We positioned our CEO study in the depths of our “**trained incapacities**” that repeatedly expose us to practice environments that are known, familiar, structured, routine, defined, rational, reliable, certain, controlled, linear, expected, explored and anticipated... Yet in an uncertain world, much of life is the complete opposite: unknown, unfamiliar, unstructured, non-routine, ill-defined, irrational, unreliable, uncertain, uncontrollable, non-linear, unexpected and unexplored; much of which is unanticipated.

At the heart of the matter is that when we are exposed to such complexity, our usual expectations and taken-for-granted assumptions are put to the test and challenged – often abruptly revealing they no longer have utility, become outdated and irrelevant to incoming experiences, situations and events.

At these trying times, our ideas begin to stall, our visions of the world shrink, we get STUCK in the heat of battle - unable to move and progress – and we end up resorting to our past habitual practices, reinforcing patterns and routines, often over-simplifying the complexity of the situation.

Yet, as the results of our clinical psychology interviews show, great problem-solvers “**drop their tools**”, **reconstrue** and **unlearn** to help them open up the alternatives. In the final analysis, it turns out that the problem is not the problem. The problem is the way we think about the problem.

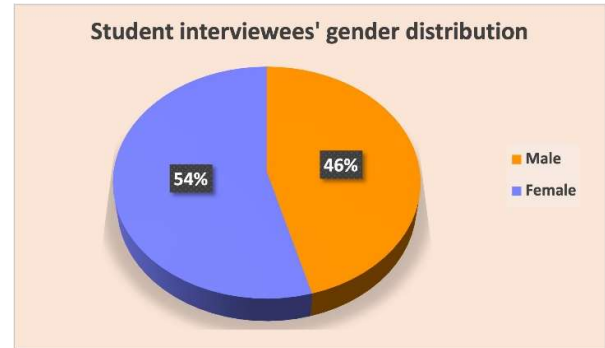
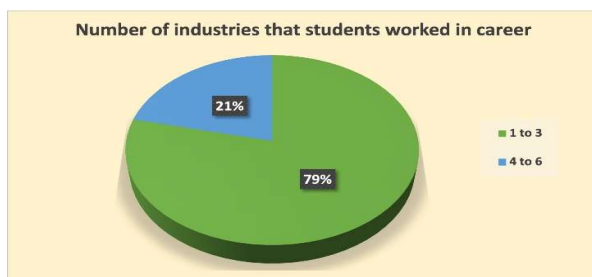
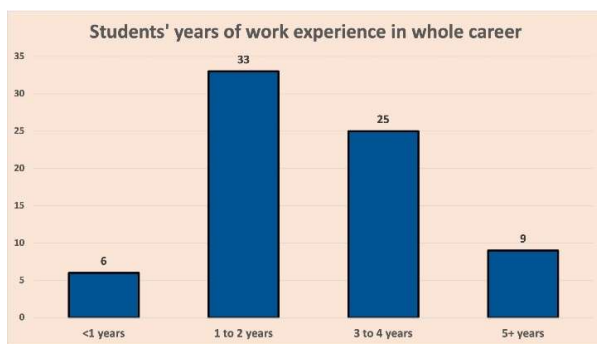
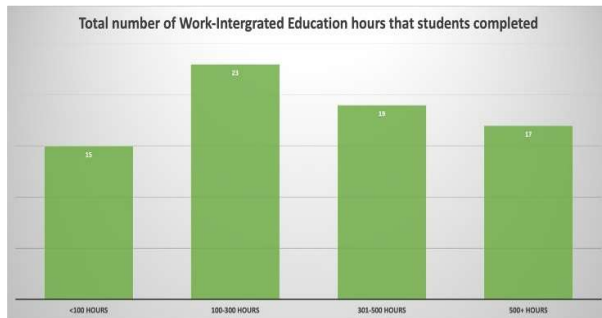
*“It isn’t that they can’t see the solution. It is that they can’t see the problem. They can’t see the problem if they are looking in the wrong places. They can’t see the problem if they are wearing blinders on; for none are so blind as those that will not see.”*

*Gilbert K. Chesterton*

## Extended study: Interviews with 81 senior strategy students

### Sample breakdown and preliminary findings

Similar to the CEO study, we also conducted a further 81 clinical psychology interviews (each averaging 30 minutes in duration) with senior strategy students at the end of their final year Strategic Management Course taught at a leading internationally ranked business school. These students had worked ranging from less than 1-year to some acquiring more than 5-years, with the majority having 1-2 years of work experience. All students have acquired a reasonable number of Work Integrated Education (WIE) internship hours, ranging from 100-500+ hours with the majority accumulating 300-500 hours. Males accounted for 46% and female students 54% of the total sample size.



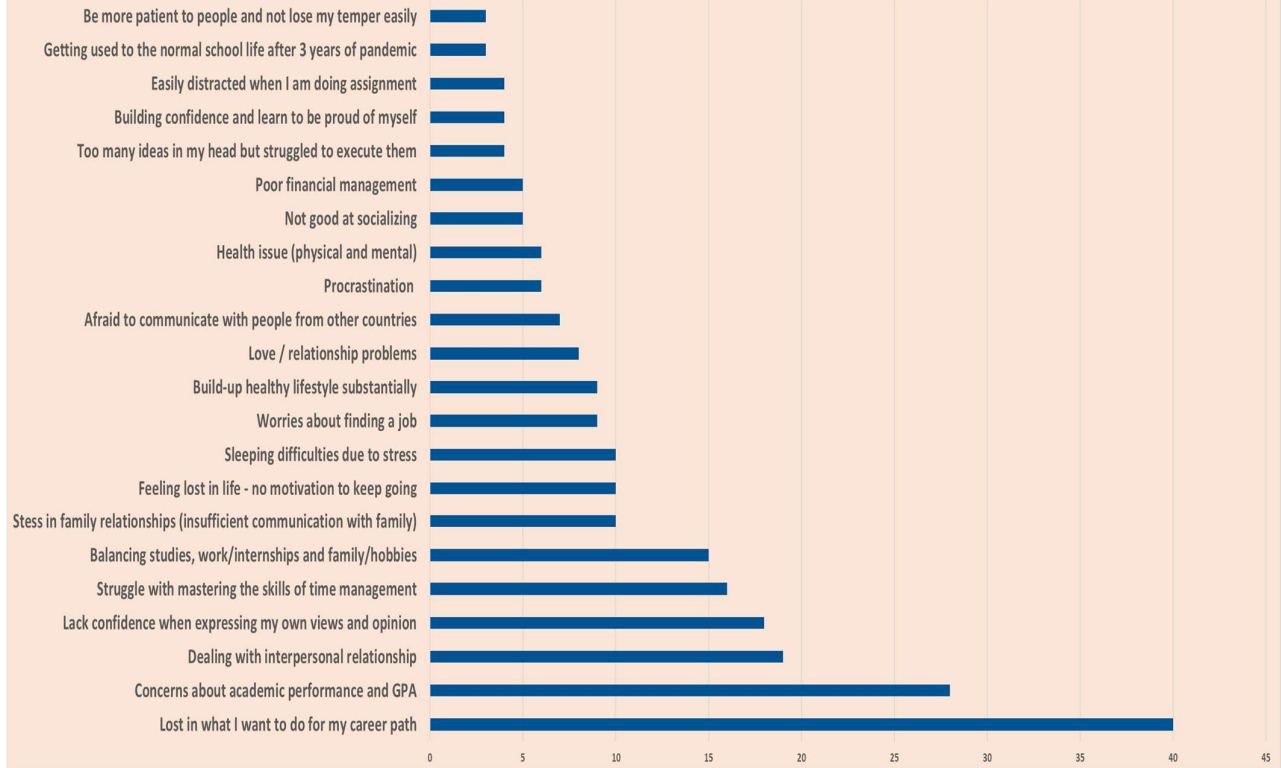
### What's keeping students awake at night?

During the study period, we solicited a total of 239 key challenges senior students were facing (22 clusters emerged). Issues of great concern ranged from feeling lost in their careers, concerns about academic performance, dealing with interpersonal relationships, having lack of confidence in expressing their views, struggling to master time management, balancing work/internships and family/hobbies, stress in family relationships (insufficient communication with family), to feeling lost in life – no motivation to keep going. Other areas of concern included issues relating to sleeping difficulties due to stress, procrastination, poor financial management, and being easily distracted, inter alia.

### Senior strategy students' top three advice on what must be done to open up the alternatives

Again, following the same protocol as we did with the CEO / Executive sample, prior to the more in-depth clinical psychology interviews, we surveyed senior strategy students on their top three (3) "must do" (advice) if we were to successfully open up the alternatives whenever we get "stuck" with complex problems, issues and challenges. To this question, we solicited a total of 284 responses with some clear overlap and consistency in their counsel (16 clusters emerged). The most frequently occurring advice was the need to seek advice / help from experienced and trusted friends and professionals (in/outside your field), stop procrastinating – be brave and don't be afraid to try, stop/ pause, stay calm and think about the issue, see things differently so you can see different things, research the problem to understand the context and causes, to being positive (never tell yourself you are stuck). A full list of their top picks can be seen in the relevant figure below.

### Top 3 complex problems, issues and challenges that students currently facing



### Top 3 MUST do to open up alternatives when students get stuck



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## Results from clinical psychology interviews: 81 senior strategy students)

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In-depth face-to-face clinical psychology interviews further reveal and manifest the internal thought-processes of what senior strategy students do (*or failed to do*) to better solve complex problems, issues and challenges – especially when they find themselves stuck. From 81 seniors, we elicited a total of 486 responses ranked in terms of their frequency. The table (see page 13) provides an aggregated detail breakdown on the range of bi-polar constructs elicited from these senior students based on their experience in dealing with complexity. Of particular note are the responses to the left of the table – which signifies what they did to open up the alternatives when they find themselves stuck. To the right of the table represent what students failed to do (to open up the alternatives) – which inevitably did not allow them to progress (and hence remained stuck).

The type of actions that allowed students to progress from being stuck ranged from talking to people inside and outside my field, take a moment to calm down, having the end goal in mind, try to see things differently – open your mind to see alternatives, being brave and facing the problem rather than running away, spending more time to work on the problem, practicing daily to gain confidence and taking a step back to review and rethink the problem, amongst others. On the other hand, complex problems, issues and challenges are not successfully solved when students exhibit the following range of actions: don't seek others' help – think by myself, don't take a moment to stay calm and reflect, don't have the end in mind (not thinking how to improve), don't want to think too much, afraid to step outside my comfort zone, failed to face my difficulties and not enough revision, inter alia.

Going beyond these results, and grounded on each senior strategy students' clinical interviews aggregated as shown in the table, we produced an overall collective cognitive map (spread in psychological space) on how they were thinking (what they did and fail to do) when they find themselves stuck with complexity. While each student experienced their own set of complex problems, issues and challenges, our systematic and rigorous use of role title elements (E1, E2, E3... E9) (shown in red font) (see page 13) to elicit these complex items

allows us to present this group map for demonstration purposes. The map provides some simple steps in how to read the results. Of particular importance are the bi-polar construct lines (perceptions of students' actual experience when dealing with complexity) and their relation to the location of the nine (9) element types of problems, issues and challenges (shown in red font). To the left of the map are the preferred construct poles where students say what really helped them progress from being stuck; to the right of the map are construct poles that hindered their progress.

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## Seven latent themes emerged – inherent thinking patterns of great (student) problem-solvers

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Once again, similar to the CEO study, we used the same systematic and rigorous protocol in the treatment of our dataset. Taking together all the key findings from our senior strategy student study, we conducted further meta-analysis of the dataset with four independent coders and discovered some noticeable similarities (*though different in terms of depth and substance from the CEO sample*) inherent latent themes emerging that underpins what great (student) problem-solvers do when they find themselves stuck with complexity. Consistent with the CEO study, these latent themes were cross-checked with the extant and disparate bodies of knowledge (in practitioner and scientific research) make explicit, distinct clustering around seven (7) themes.

Specifically, and grounded in strategy students' own language, latent theme one focused on a core theme of *Fresh perspective*: the importance of redefining, re-examining, re-thinking the problem; seeing things from different perspective so that we can see different things, opening our minds to alternatives and doing the opposite to what everyone else was doing. Latent theme two is a clustering of constructs to do with thinking, feeling and acting 'as if' you are the *Owner*: taking ownership and responsibility, seeking advice and help from experienced and trusted friends / professionals, talking to people in/outside of your field, identifying the problem before it happens, and conducting more context research and analysis to understand the causes.

Latent theme three emphasized the need for **Connected-thinking** to help open up the alternatives: breaking down the problem into small tasks, seeing the world more broadly, making connections to the overall directional plans and the capacity to switch mindset to see more things. Similar to our CEO sample, senior strategy students also believed having **Urgency with the end in mind** (Latent theme four) was paramount if they were to better deal with being stuck with the unknown. Key constructs that grouped to form this cluster talked about: having the end goal in mind, taking action, prioritize what is important, reorganizing schedule / timetable so not distracted, take reference from successful solutions and examples, give-up something / let go to move forward, being brave – face the problem directly without running away, stop procrastinating (don't be afraid to try), and beginning with the end in mind.

Latent theme five: **Working as a team**. Here students emphasized the importance of solving problem together / to co-create, and having more discussions and communications to better deal with complexity. **Being Engaged** also featured prominently in the findings. Here latent theme six addressed issues of practice daily to gain more confidence, spending more time with the problem, explore new ways to solve, do more preparation and rehearsals (see things sooner), don't be afraid of failure and always perform experiments, open to new experiences / outcomes, and always having a positive mindset / believe I can achieve (tell yourself you are not stuck).

And finally, latent theme seven: the importance of **Constant reflection / reflexion**. The need to stop, pause, stay calm to think about the issue / problem so that vision becomes clear and the mind not messy. This may sometime mean taking a break and relaxing (rest, sleep, listen to favorite music, watch funny videos...). The key is to reflect deeply about root causes (and what is stopping me from solving the problem). All these were considered important to progress and move forward.

*“... it is not events themselves which influence or mould people, torment or terrify them or make them deliriously happy. It is the meaning with which these events are invested by the individual which is the potent ingredient.”*

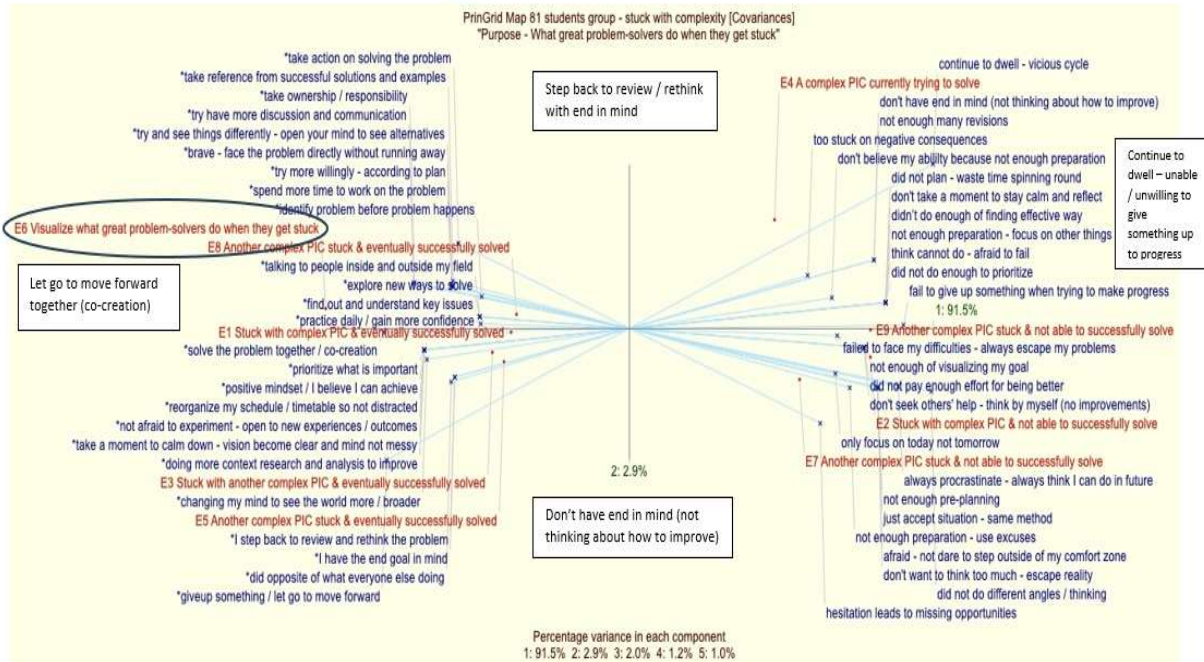
*George Kelly*



Senior Strategy Students: In terms of "when you find yourself stuck, what did you do (or failed to do) to better solve it?"

Elicited Bi-Polar Constructs		Construct Frequency	
What helps open up the alternatives	What doesn't help open up the alternatives		
C1	*talking to people inside and outside my field	↔ don't seek others' help - think by myself (no improvements)	34
C2	*take a moment to calm down - vision become clear and mind not messy	↔ don't take a moment to stay calm and reflect	32
C3	*I have the end goal in mind	↔ don't have end in mind (not thinking about how to improve)	29
C4	*try and see things differently - open your mind to see alternatives	↔ don't want to think too much - escape reality	29
C5	*brave - face the problem directly without running away	↔ afraid - not dare to step outside of my comfort zone	24
C6	*spend more time to work on the problem	↔ just accept situation - same method	23
C7	*practice daily / gain more confidence	↔ failed to face my difficulties - always escape my problems	23
C8	*explore new ways to solve	↔ did not pay enough effort for being better	22
C9	*I step back to review and rethink the problem	↔ not enough many revisions	21
C10	*solve the problem together / co-creation	↔ fail to give up something when trying to make progress	20
C11	*identify problem before problem happens	↔ only focus on today not tomorrow	20
C12	*find out and understand key issues	↔ not enough of visualizing my goal	19
C13	*take action on solving the problem	↔ hesitation leads to missing opportunities	18
C14	*prioritize what is important	↔ did not do enough to prioritize	18
C15	*positive mindset / I believe I can achieve	↔ think cannot do - afraid to fail	18
C16	*reorganize my schedule / timetable so not distracted	↔ not enough preparation - focus on other things	18
C17	*try more willingly - according to plan	↔ not enough pre-planning	17
C18	*take reference from successful solutions and examples	↔ not enough preparation - use excuses	17
C19	*take ownership / responsibility	↔ always procrastinate - always think I can do in future	16
C20	*not afraid to experiment - open to new experiences / outcomes	↔ didn't do enough of finding effective way	16
C21	*try have more discussion and communication	↔ did not do different angles / thinking	15
C22	*doing more context research and analysis to improve	↔ did not plan - waste time spinning round	15
C23	*changing my mind to see the world more / broader	↔ don't believe my ability because not enough preparation	10
C24	*giveup something / let go to move forward	↔ continue to dwell - vicious cycle	7
C25	*did opposite of what everyone else doing	↔ too stuck on negative consequences	5
Total number of personal constructs elicited from 81 senior strategy students (novice problem-solvers)			486

Collective Cognitive Map of 81 Senior Strategy Students: What Great Problem-Solvers Do When They Get Stuck



- Vector lines represent the shared bi-polarity in construing used by Senior Strategy Students to describe their experience when dealing with complexity; Each construct has a preferred side marked with an "\*" indicating students' choice of what helps them open up the alternatives when they find themselves STUCK with complexity.
- Look at these bi-polar construct lines near any one of the 9 "Role title" Elements (E1, E2, E3...E9) to see how they are described based on students' experience with them when dealing with complexity – specifically – **what they do (or fail to do) when they find themselves stuck, so that they can progress.**
- The spread in psychological space is generated based on students' ratings of their 9 Role title elements using their own elicited bi-polar constructs generated from our interviews. The overall output is generated using Repertory Grid Clinical Psychology software. This collective map shows we captured **94.4%** of the Total Percentage of Variance of how Senior Strategy Students are thinking when they get stuck with complexity.
- Abbreviation PIC stands for a complex Problem, Issue or Challenge.

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