The Eben Integrated Model: A Structured Decision Architecture for Complex Systems — Aligning Readiness, Constraints, and Context in Adaptive Decision-Making

Abstract

Across healthcare, organisational practice, education, and public policy, a consistent problem persists awareness and intention do not reliably lead to action. Individuals may recognise the need to change, organisations may introduce improvements, and governments may provide guidance, yet adoption frequently remains limited. Research in behavioural and implementation science shows that behaviour rarely depends on knowledge alone; rather, it emerges from the interaction between psychological readiness, practical constraints, and environmental conditions. Despite this understanding, behavioural theories are commonly applied separately, resulting in interventions that occur too early, target the wrong barrier, or operate at an ineffective level.

This paper presents the Eben Integrated Model, a structured decision architecture designed to organise established behavioural theories into a coherent and usable sequence. A cross-disciplinary review of behavioural and implementation literature identified three complementary theoretical dimensions: readiness, mechanism, and context. The Transtheoretical Model explains when individuals or organisations are prepared to act, the COM-B model identifies why behaviour is prevented, and the Socio-Ecological Model indicates where intervention should occur. Each framework offers valuable insight but lacks operational guidance when used alone.

The proposed model links these dimensions into a sequential process expressed as: *Action Effectiveness* = *Timing* × *Constraint* × *Context*. The framework operates through four steps: assessing readiness, diagnosing the dominant behavioural barrier, selecting the highest-leverage level for intervention, and continuously reassessing as conditions change. By structuring application rather than introducing new behavioural determinants, the model converts parallel explanations into a coordinated decision pathway suitable for complex adaptive systems.

The Eben Integrated Model therefore functions as an integrative decision framework rather than a competing behavioural theory. It supports researchers and practitioners in interpreting behavioural failure as misalignment rather than resistance and provides a systematic approach for improving implementation outcomes across diverse professional settings.

Keywords:
Eben Integrated Model; behavioural change; implementation science; decision architecture; readiness to change; behavioural determinants; COM-B; socio-ecological model; adaptive intervention; complex systems; intervention alignment; organisational change; policy implementation; engagement; context-responsive decision-making.

1. Introduction

Across diverse professional domains including healthcare, organisational management, education, and public policy a persistent challenge recurs: the availability of knowledge does not reliably translate into action. Organisations frequently implement training programmes that employees fail to adopt, governments introduce policies that citizens disregard, patients postpone treatment despite awareness of benefit, and learners disengage even when resources are accessible. Such patterns indicate that behaviour cannot be explained solely through information deficits. Contemporary behavioural science instead suggests that action emerges from interacting psychological, social, and structural conditions rather than knowledge alone (Michie, van Stralen, & West, 2011; Patel et al., 2018).

Empirical evidence across implementation contexts reinforces this complexity. Public health interventions often show limited uptake despite accessibility, organisational change programmes encounter resistance even when incentives are present, and educational reforms struggle despite improved curricula (Nilsen, 2015; Lund et al., 2018). These outcomes challenge classical rational-choice assumptions that individuals act once benefits are known. Instead, behaviour appears contingent upon alignment between psychological readiness, environmental opportunity, and contextual support systems. When these dimensions diverge for example, when motivation exists but access does not, or when infrastructure exists but readiness does not adoption remains low despite apparent capacity for change.

Despite this understanding, intervention strategies frequently rely on single-cause explanations. Behavioural failure is commonly attributed to lack of motivation, insufficient knowledge, or inadequate resources. However, research consistently challenges such reductionism. Complex social interventions operate within dynamic systems in which outcomes depend on the interaction of multiple conditions rather than isolated factors (Hawe, Shiell, & Riley, 2009; World Health Organization, 2022). A patient may understand treatment yet fear stigma, an employee may accept change yet lack capability, or a citizen may support policy yet face structural barriers. In each case, behaviour is constrained not by unwillingness alone but by misalignment across interacting determinants.

The implication is both conceptual and practical. Behavioural science offers robust explanatory models, yet these are often applied independently rather than relationally. Motivational approaches target willingness, capability models address skills, and structural reforms modify environments, but each alone addresses only part of the causal system. Implementation research suggests that adoption improves when psychological readiness, behavioural determinants, and ecological context operate coherently rather than separately (Nilsen, 2015; Lund et al., 2018). The central challenge therefore shifts from persuading individuals to understanding the architecture through which behaviour becomes possible.

This paper advances the Eben Integrated Model as a structured decision architecture designed to address this alignment problem. Rather than proposing a new determinant of behaviour, the model organises existing theoretical insights into a procedural sequence linking readiness, constraint, and context. By conceptualising behaviour as an emergent property of coordinated conditions, the framework aims to provide a systematic approach for analysing why action fails and how interventions can be aligned to support adaptive decision-making across complex systems. The model is presented as part of the broader EBEN SYSTEM™ methodology, referring to the originating decision architecture within which the framework is situated.

2. Theoretical Fragmentation in Behavioural Application

Behavioural science has generated a wide range of influential theories explaining why individuals and organisations act as they do. However, when these theories are applied independently, they often produce partial or inconsistent outcomes. Implementation research suggests that difficulties arise not because theories are inaccurate, but because they are applied without coordination across behavioural dimensions (Nilsen, 2015; Davis et al., 2015). Three recurring patterns illustrate this fragmentation: mistimed intervention, motivational reductionism, and structurally diffuse reform.

The first pattern concerns timing. Many behavioural interventions focus on determinants such as capability, opportunity, and motivation while implicitly assuming individuals are equally ready to act once these determinants are addressed. Evidence challenges this assumption. Readiness varies over time, and interventions delivered before psychological preparation may provoke resistance or disengagement rather than uptake (Norcross, Krebs, & Prochaska, 2011; West, 2005). For example, requesting behavioural commitment before recognition of need can generate avoidance responses even when resources are available. Behavioural determinants alone therefore do not fully explain action; temporal readiness moderates response to intervention. Ignoring this temporal dimension can produce mistimed strategies that target the correct factor at an ineffective moment.

The second pattern involves motivational reductionism the tendency to treat behaviour primarily as a function of willingness. Many change programmes aim to increase awareness, persuasion, or incentives, assuming that once individuals want to act they will do so. However, motivation does not ensure feasibility. Structural conditions such as access, affordability, organisational processes, and social norms frequently constrain behaviour even when intention is present (Baum & Fisher, 2014; Patel et al., 2018). Studies across health and organisational contexts show that individuals may express readiness but remain unable to act due to practical barriers beyond personal control. When interventions focus solely on attitudes, responsibility

for non-adoption becomes individualised, obscuring environmental constraints and limiting sustained change.

The third pattern arises in structurally oriented approaches. Ecological and systems frameworks emphasise that behaviour occurs within interconnected social and institutional environments (McLeroy et al., 1988). Policy reforms, service redesign, and environmental restructuring therefore attempt to expand opportunity at a population level. Yet structural improvements alone do not guarantee behavioural uptake. Psychological factors such as uncertainty, stigma, habit, or low perceived relevance may persist despite expanded access (World Health Organization, 2022). Without behavioural specificity, environmental reforms risk broad implementation without targeted engagement, resulting in underuse of newly created opportunities.

Taken together, these patterns suggest theoretical separation rather than theoretical weakness. Readiness theories describe when action becomes possible, determinant models describe conditions influencing performance, and ecological frameworks describe where influences operate. Each addresses a valid dimension of behaviour, yet none alone specifies how these dimensions interact procedurally. Implementation literature therefore calls for integrative approaches capable of linking timing, mechanism, and context into a coherent decision process (Nilsen, 2015; Davis et al., 2015). The central issue is not absence of explanation but absence of alignment a gap between understanding behaviour and organising intervention in a structured sequence.

3. Literature Review

Understanding why individuals, groups, and organisations fail to act despite available knowledge has been a central question across psychology, public health, management science, and policy implementation research. Behavioural science has produced numerous theoretical models explaining action and non-action; however, their practical application often remains fragmented across disciplines. The purpose of this literature review is therefore not only to summarise behavioural theories but to identify complementary models capable of forming a coherent explanatory architecture applicable across diverse contexts.

3.1 Search Strategy and Selection Rationale

The purpose of this literature review was not merely to summarise behaviour change theories but to identify a coherent set of concepts capable of supporting a transferable decision architecture across multiple professional domains. Behavioural frameworks are frequently developed within disciplinary boundaries clinical psychology, public health, education, organisational science, or policy and therefore tend to emphasise domain-specific explanations. The present work instead sought a model applicable across complex systems rather than restricted to a single field.

Accordingly, the search strategy prioritised conceptual breadth, relevance, and practical applicability rather than exhaustive coverage within one discipline.

Search Databases and Approach

A structured narrative review was conducted using Scopus, PubMed, PsycINFO, Web of Science, and Google Scholar. Each database captures different forms of knowledge: PubMed emphasises clinical and public health research; PsycINFO focuses on psychological theory and behavioural mechanisms; Scopus and Web of Science index interdisciplinary and organisational studies; and Google Scholar broadens coverage to policy, education, and grey literature. Using multiple databases improves conceptual diversity and reduces disciplinary bias when investigating behavioural phenomena spanning social and institutional contexts (Davis et al., 2015; Nilsen, 2015).

A narrative rather than systematic review approach was adopted because the objective was theoretical integration rather than effect-size estimation. Systematic reviews are appropriate for comparing interventions, whereas conceptual model development requires interpretive synthesis across heterogeneous sources (Greenhalgh et al., 2018). The aim was therefore to identify recurring explanatory patterns rather than quantify outcomes.

Search Terms and Conceptual Scope

Search terms were designed to capture behavioural explanation across disciplines rather than a single theoretical tradition. The following combinations were used:

- behaviour change model
- behaviour change theory
- implementation framework
- readiness to change
- barriers and facilitators
- behavioural determinants
- intervention uptake
- ecological systems behaviour
- multi-level intervention
- organisational adoption
- help-seeking behaviour
- behaviour change wheel

These terms reflect three conceptual dimensions repeatedly observed in implementation literature: psychological readiness, causal mechanisms, and contextual environment. Previous behavioural reviews demonstrate that research clusters around these domains despite differing terminology (Michie et al., 2011; Davis et al., 2015). Including diverse terminology therefore enabled identification of both individual-level psychological theories and system-level implementation frameworks.

Interdisciplinary Inclusion Rationale

The search intentionally incorporated healthcare, organisational behaviour, education, public policy, and social psychology literature. Behavioural failure appears across these domains—for example treatment adherence, innovation adoption, learning engagement, and regulatory compliance—suggesting a shared underlying structure rather than discipline-specific causation (Lund et al., 2018; Weiner, 2009). Limiting the review to a single field would risk selecting theories optimised for one context but not transferable across systems.

Implementation research further recommends cross-sector analysis because interventions frequently fail when knowledge is transferred without accounting for behavioural and contextual conditions (Hawe et al., 2009; Nilsen, 2015).

Inclusion Criteria

To identify theories capable of supporting a general decision architecture, four criteria were applied:

1. **Empirical validation across multiple contexts**
   Frameworks required evidence of application beyond a single behaviour or population to ensure transferability (Davis et al., 2015).
2. **Conceptual clarity**
   Theories needed clearly specified behavioural mechanisms rather than descriptive categorisation alone (Michie et al., 2011).
3. **Operational usefulness**
   Frameworks had to be used in intervention design or implementation planning rather than purely theoretical discussion (Nilsen, 2015).
4. **Complementarity**
   Selected theories needed to explain distinct behavioural dimensions rather than repeat similar constructs.

Consideration and Exclusion of Alternative Theories

The review identified influential behavioural theories including Social Cognitive Theory, the Theory of Planned Behaviour, the Health Belief Model, Diffusion of Innovations, and Self-Determination Theory. These models provide strong explanations of motivation, attitudes, perceived control, and social learning (Ajzen,

1991; Bandura, 1986). However, they primarily address cognitive determinants and therefore occupy the same explanatory layer.

Although empirically supported, these theories were excluded from the final architecture because combining them would increase conceptual complexity without improving decision sequencing. Prior reviews similarly show that many behavioural models differ terminologically while sharing underlying constructs (Davis et al., 2015). The objective was structural complementarity rather than theoretical accumulation.

Identification of Complementary Dimensions

Analysis of the literature revealed three distinct behavioural questions:

Dimension	Question	Selected Framework
Temporal	When behaviour becomes possible	Transtheoretical Model
Mechanistic	What prevents behaviour	COM-B
Contextual	Where intervention should occur	Socio-Ecological Model

The Transtheoretical Model explains readiness progression and engagement timing (Prochaska & DiClemente, 1983).
The COM-B model identifies capability, opportunity, and motivation as causal behavioural conditions (Michie et al., 2011).
The Socio-Ecological Model situates behaviour within nested environmental systems (McLeroy et al., 1988).

No other combination consistently addressed all three dimensions without conceptual overlap. Together they provide temporal sequencing, diagnostic clarity, and contextual targeting.

Rationale for Selection

Selection was therefore based on complementarity rather than popularity. Each framework addresses a distinct operational problem:

- TTM — prevents premature intervention
- COM-B — identifies the dominant barrier
- SEM — identifies the level of leverage

Implementation failures frequently occur when these elements are mismatched interventions applied at the wrong time, addressing the wrong mechanism, or targeting the wrong level (Nilsen, 2015; Hawe et al., 2009). The combination therefore supports a structured decision process rather than an expanded list of determinants.

The remainder of the review critically examines these frameworks individually before presenting their integration into a unified behavioural architecture.

3.2 Readiness Theories — The Transtheoretical Model (TTM)

One of the most consistent findings in behavioural research is that individuals rarely move directly from awareness to sustained action. Instead, change typically unfolds through phases of hesitation, contemplation, preparation, and maintenance. The Transtheoretical Model (TTM) was developed to capture this temporal dimension of change (Prochaska & DiClemente, 1983; Norcross et al., 2011). Rather than treating behaviour as a single decision event, it conceptualises change as a process occurring over time.

Empirical research indicates that interventions aligned with readiness stage can improve engagement and behavioural outcomes. Motivational interviewing approaches, for example, demonstrate stronger effects when adapted to an individual's readiness rather than applied uniformly (Miller & Rollnick, 2013). Organisational research similarly shows that employees often resist directives introduced before perceived relevance or urgency is established (Weiner, 2009). In public health settings, advice delivered prematurely may lead to avoidance rather than compliance (West, 2005). These findings suggest that behavioural response is influenced not only by the content of an intervention but also by its timing relative to psychological preparedness.

However, the TTM has also attracted substantial critique. Some researchers argue behaviour change may occur along a continuum rather than discrete stages (Sutton, 2001). Others suggest stage classification risks oversimplifying complex decision processes (West, 2005). Furthermore, readiness alone cannot overcome structural barriers such as affordability or access (Patel et al., 2018). The model therefore provides an incomplete explanation when applied in isolation.

Despite these limitations, TTM contributes an important dimension absent from many behavioural theories: temporality. It helps identify when an intervention is psychologically viable rather than assuming readiness is constant. Without attention to this temporal element, hesitation may be misinterpreted as resistance or unwillingness. For this reason, TTM is retained not as a comprehensive explanatory model but as the temporal component within a broader behavioural architecture.

3.3 Determinant Models — COM-B

Where the Transtheoretical Model explains readiness, it does not specify the mechanisms through which behaviour occurs. The COM-B model addresses this gap by proposing that behaviour results from interaction between **Capability, Opportunity, and Motivation** (Michie et al., 2011). Unlike purely cognitive theories, COM-B integrates psychological, physical, and environmental determinants into a

single behavioural system, allowing behaviour to be analysed as the product of multiple interacting conditions rather than intention alone.

COM-B has been widely adopted across implementation science because it translates theoretical constructs into modifiable intervention targets (Michie et al., 2014). Applications across healthcare practice, workplace behaviour, and policy compliance demonstrate its usefulness in diagnosing barriers to adoption (Keyworth et al., 2020). Importantly, the framework avoids over-individualisation by explicitly including environmental opportunity alongside psychological capability and motivation.

However, COM-B does not explicitly address temporal sequencing. While it identifies behavioural constraints, it does not specify when particular determinants become decisive. For example, motivation may dominate early engagement, whereas capability or opportunity may become limiting during sustained implementation. Without temporal logic, interventions may target the correct determinant at an ineffective stage (Baum & Fisher, 2014).

COM-B therefore provides diagnostic explanation of why behaviour fails but not when intervention should occur or how determinants should be prioritised over time. For this reason, it was selected as the mechanistic component within the integrated behavioural architecture rather than as a complete explanatory framework.

3.4 Ecological Frameworks — Socio-Ecological Model (SEM)

Behaviour does not occur in isolation but within nested social systems. The Socio-Ecological Model (SEM) conceptualises behaviour as shaped across interacting levels: individual, interpersonal, organisational, community, and policy (McLeroy et al., 1988). This perspective has gained prominence in public health and implementation research because many behavioural outcomes depend on structural conditions in addition to individual choice (Lund et al., 2018).

SEM is particularly useful in addressing the tendency of behavioural interventions to attribute non-adoption solely to individual attitudes. Increasing knowledge or motivation may have limited effect when systemic barriers exist, such as inaccessible services, institutional procedures, or organisational culture (World Health Organization, 2022). Structural interventions including workflow redesign, regulatory reform, and service integration can therefore influence behaviour by altering the conditions under which action becomes feasible (Hawe et al., 2009).

However, ecological frameworks provide limited decision sequencing. They identify levels of influence but do not specify which level should be targeted first in each behavioural situation. Without behavioural diagnosis, ecological interventions may produce broad yet inefficient change efforts, addressing multiple levels without prioritisation.

SEM therefore contributes spatial understanding indicating where change may need to occur but requires integration with temporal readiness and behavioural mechanisms to guide practical intervention decisions.

3.5 Why These Three Models Were Selected

The literature review identified numerous behavioural theories across psychology, public health, education, and organisational science. Closer examination indicated that many converge on related psychological constructs. Models such as the Theory of Planned Behaviour, Health Belief Model, and Social Cognitive Theory primarily address attitudes, beliefs, intentions, and perceived control (Ajzen, 1991; Bandura, 1986; Rosenstock, 1974). While empirically robust, these frameworks largely operate within the same cognitive domain. Applying several simultaneously may therefore increase conceptual complexity without substantially improving intervention design, as each address why individuals form intentions to act. The aim of this review was consequently not to accumulate additional determinants but to organise behaviour into functional dimensions capable of supporting practical decision-making.

Implementation literature suggests behavioural difficulties rarely arise from a single psychological factor. Instead, challenges frequently emerge when behavioural strategies do not align with timing, mechanism, or contextual conditions (Nilsen, 2015; Hawe et al., 2009). Model selection therefore focused on identifying theories corresponding to temporal, mechanistic, and structural dimensions of behaviour rather than overlapping explanatory constructs.

The Transtheoretical Model (TTM) was selected because it addresses behavioural timing. Unlike expectancy-based cognitive theories, it conceptualises change as progression through readiness states rather than a single decision event (Prochaska & DiClemente, 1983; Norcross et al., 2011). Evidence indicates that interventions adapted to readiness stage can improve engagement in certain contexts (Miller & Rollnick, 2013), highlighting the relevance of temporal alignment (West, 2005). TTM therefore informs the operational question: when might intervention be appropriate?

The COM-B model was selected because it provides a structured method for organising behavioural determinants. Rather than multiple psychological variables, it groups causal conditions into capability, opportunity, and motivation (Michie et al., 2011). This framework has been widely applied in implementation research to examine barriers to adoption (Michie et al., 2014; Keyworth et al., 2020). COM-B therefore informs the mechanistic question: what factors may be preventing behaviour?

The Socio-Ecological Model (SEM) was chosen because behaviour occurs within nested environmental systems ranging from interpersonal relationships to policy structures (McLeroy et al., 1988). Structural conditions are consistently associated with engagement and service utilisation alongside individual determinants (Lund et

al., 2018; World Health Organization, 2022). SEM therefore informs the spatial question: at what level might intervention be directed?

No alternative combination identified in this review appeared to provide similarly distinct explanatory coverage. Cognitive theories primarily address mechanisms, stage theories provide limited structural guidance, and systems models typically lack behavioural sequencing. TTM, COM-B, and SEM were therefore selected because each contributes a different operational function temporal readiness, behavioural diagnosis, and contextual targeting allowing behaviour to be examined as an organised process rather than a collection of independent determinants.

3.6 Integrative Implication

Individually, each selected theory provides a partial explanation of behaviour. The Transtheoretical Model describes readiness progression but does not identify the barrier preventing action. The COM-B framework organises behavioural determinants but does not specify when those determinants become influential. The Socio-Ecological Model identifies environmental levels yet provides limited guidance on intervention sequencing. These limitations reflect disciplinary focus rather than conceptual weakness, as each theory was developed to address a different explanatory problem (Nilsen, 2015; Davis et al., 2015).

When applied independently, implementation mismatches may occur. An intervention may appropriately target capability but be delivered before readiness is established, resulting in limited engagement. Alternatively, readiness may be present while structural barriers prevent enactment. In other cases, environmental reforms may be introduced while behavioural constraints remain, producing limited uptake. Implementation research suggests behavioural adoption improves when psychological and structural conditions operate in coordination rather than isolation (Hawe et al., 2009; Lund et al., 2018).

Integrating the three models allows a sequential interpretation. TTM indicates temporal readiness the point at which change becomes psychologically plausible (Norcross et al., 2011). COM-B identifies the dominant constraint the mechanism influencing performance (Michie et al., 2011). SEM identifies leverage level the system location where intervention may be directed (McLeroy et al., 1988). The relationship between the models is therefore procedural rather than additive.

This relationship can be conceptually represented as:

Behaviour ≈ readiness × constraint × context

The multiplicative form emphasises alignment. If readiness is absent, interventions are likely to encounter resistance regardless of resources. If an incorrect barrier is targeted, intention may not translate into action. If the intervention level is mismatched, behavioural change may not be sustained. Behaviour can therefore be

interpreted as emerging from coordination among conditions rather than the magnitude of a single determinant.

Integration also offers a way to reconcile individual and structural explanations of behaviour. Rather than privileging one level, each assumes a functional role: readiness relates to timing, diagnosis relates to mechanism, and ecological mapping relates to leverage. Theories therefore operate as complementary components of a decision architecture rather than competing explanations.

The Eben Integrated Model develops this integrative logic. Its contribution lies not in introducing new behavioural determinants but in organising established theories into an operational pathway intended to guide adaptive intervention design across complex systems (Davis et al., 2015; Michie et al., 2014). Behaviour is consequently treated as an emergent property of aligned conditions rather than a direct consequence of persuasion alone.

4. Critical Gap Analysis

Across behavioural science, readiness theories, determinant models, and ecological frameworks each contribute distinct explanatory insights. Readiness models introduce temporal sensitivity by recognising that individuals and organisations vary in preparedness for change (Norcross et al., 2011). Determinant frameworks such as COM-B provide diagnostic structure by organising capability, opportunity, and motivation as interacting influences on behaviour (Michie et al., 2011). Ecological perspectives extend analysis beyond the individual, emphasising how behaviour is shaped within nested structural environments ranging from interpersonal relationships to policy systems (McLeroy et al., 1988; World Health Organization, 2022). Collectively, these traditions indicate that behaviour is influenced by timing, mechanism, and context.

Despite these complementary strengths, each framework omits a dimension addressed by the others. Readiness models indicate when change may be psychologically plausible but not why action remains blocked when readiness exists. Individuals may recognise the need to act yet lack resources, skills, or social permission, illustrating the limits of temporal explanation alone (West, 2005; Patel et al., 2018). Conversely, determinant models identify behavioural constraints but do not specify temporal sequencing. They describe capability or opportunity deficits without clarifying whether these constraints operate similarly across stages of engagement (Michie et al., 2014; Keyworth et al., 2020). Ecological frameworks describe structural influence but provide limited prioritisation guidance: they indicate multiple levels of intervention without specifying which level should be addressed first under particular behavioural conditions (Hawe et al., 2009; Lund et al., 2018).

Implementation literature frequently discusses the practical consequences of this separation. Interventions may be delivered before readiness is established, may

target motivation when structural barriers dominate, or may focus on individuals while systemic constraints remain unchanged (Nilsen, 2015). Such difficulties do not reflect absence of theory but lack of coordination between theoretical perspectives. Research on complex interventions suggests effectiveness is associated with alignment between behavioural and contextual conditions rather than the strength of a single component (Hawe et al., 2009; Davis et al., 2015).

Although calls for theoretical integration are common, most literature remains at conceptual acknowledgement without specifying operational rules linking models (Nilsen, 2015). Practitioners are therefore provided with parallel explanations rather than procedural guidance. Behavioural science offers detailed knowledge of determinants but limited direction on how they should be sequenced in practice. The central gap is therefore architectural rather than empirical: existing theories explain behavioural components but do not establish how intervention decisions should be ordered.

Addressing this gap requires a framework capable of aligning readiness, behavioural mechanism, and environmental leverage into a coherent decision pathway. Without such integration, interventions risk applying appropriate strategies at ineffective moments, locations, or targets. The need is therefore not additional determinants but a structured logic linking established theories into an operational process guiding adaptive action across complex systems.

5. The Eben Integrated Model

The Eben Integrated Model is proposed as a structured decision architecture for situations in which behavioural and implementation outcomes depend on the interaction of psychological readiness, modifiable constraints, and system context. Rather than introducing new determinants of behaviour, the model integrates established insights from behavioural readiness research, determinant-based diagnosis, and ecological systems thinking into a single procedural logic. This integration reflects a recurring observation in implementation research that intervention success is influenced by alignment between engagement stage, behavioural barriers, and contextual conditions (Norcross, Krebs, & Prochaska, 2011; Nilsen, 2015).

Conceptual Definition

The Eben Integrated Model is a structured behavioural architecture aligning readiness progression, determinant prioritisation, and ecological leverage level to guide context-responsive decision-making. Behaviour is therefore conceptualised as an outcome emerging from coordinated conditions rather than solely from knowledge or motivation. This organising assumption is consistent with behavioural systems perspectives describing behaviour as influenced by capability, opportunity, and motivation (Michie, van Stralen, & West, 2011), and ecological perspectives

indicating that behaviour is shaped by nested environments including organisational and policy structures (McLeroy et al., 1988).

Core Decision Logic

The model operationalises behavioural analysis through three sequential questions:

1. **When is action possible?** (readiness stage)
2. **What prevents action?** (dominant behavioural constraint)
3. **Where should change occur?** (ecological leverage level)

This sequencing addresses a common implementation difficulty in which an intervention may identify a relevant barrier but apply a response at an ineffective moment or level (West, 2005; Hawe, Shiell, & Riley, 2009). Readiness theories indicate variability in receptivity to change (Norcross et al., 2011). Determinant models provide a structured approach for identifying capability, opportunity, or motivation constraints (Michie et al., 2011; Michie, Atkins, & West, 2014). Ecological frameworks highlight that barriers may exist beyond the individual, including organisational and policy environments (McLeroy et al., 1988; World Health Organization, 2022).

Decision Formula

The alignment principle can be expressed conceptually as:

Action Effectiveness ≈ Timing × Constraint × Context

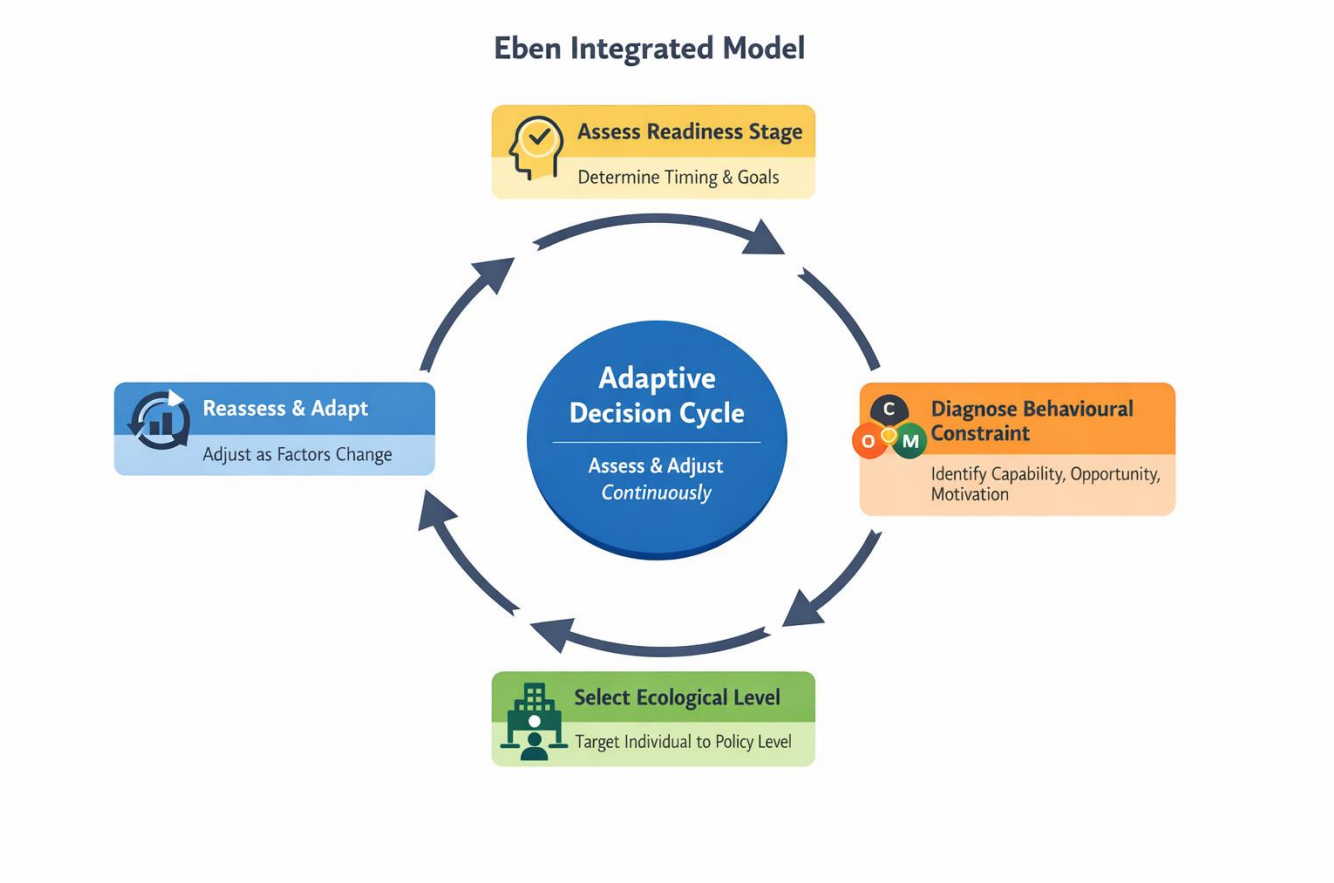
This formulation is interpretive rather than statistical. It represents the idea that intervention impact depends on coordination: if timing is inappropriate (readiness absent), engagement may be limited; if the constraint is misidentified, the intervention may target an irrelevant mechanism; if context is mismatched, the intervention may be delivered at a level unable to resolve the problem (Nilsen, 2015; Lund et al., 2018). The multiplicative form therefore illustrates interdependence among conditions rather than a quantified prediction.

Procedural Steps

In practice, the Eben Integrated Model functions as a continuous decision cycle rather than a fixed sequence:

1. **Assess readiness stage** to determine timing and immediate objective
2. **Diagnose dominant behavioural constraint** (capability, opportunity, or motivation)
3. **Select the highest-leverage ecological level** for intervention
4. **Reassess iteratively** as readiness and constraints evolve

This reassessment reflects a systems perspective in which interventions operate within dynamic environments and generate feedback requiring adaptation (Hawe et al., 2009). The model therefore functions as a general decision architecture intended to support the design and adjustment of interventions across complex behavioural contexts.



The diagram illustrates the Eben Integrated Model as a continuous adaptive cycle in which readiness is assessed, behavioural constraints are diagnosed, interventions are applied at the most effective ecological level, and outcomes are repeatedly reassessed to guide ongoing decision-making.

6. Adaptive Reassessment (Publication-Ready Version)

Behaviour occurs within evolving systems characterised by feedback, interaction, and adaptation. Individuals, organisations, and communities respond to interventions over time, meaning readiness, constraints, and contextual influences rarely remain

stable. Implementation research therefore emphasises that effective interventions often require adaptation rather than static planning (Hawe et al., 2009; Nilsen, 2015). Strategies that appear appropriate at one stage may become less relevant as participants gain experience, barriers shift, or environments change. For example, motivational support may be important during early engagement, whereas capability or structural barriers may become more salient once action begins.

The Eben Integrated Model incorporates this perspective through continuous reassessment. After each intervention phase, the decision sequence is revisited: readiness is re-evaluated, the dominant behavioural constraint reconsidered, and the ecological level of leverage re-examined. This iterative cycle treats behavioural change as a responsive process rather than a linear progression toward a fixed endpoint.

Adaptive reassessment also reduces persistent misalignment. Without reassessment, interventions may continue addressing outdated barriers, limiting effectiveness despite sustained effort. Research on complex interventions indicates that feedback-informed adaptation is often associated with improved implementation compared with rigid protocols (Hawe et al., 2009). In this sense, reassessment functions as a learning mechanism through which intervention strategies adjust as understanding develops.

By embedding reassessment within the architecture, evaluation becomes ongoing rather than retrospective. Intervention and assessment occur concurrently, allowing decisions to remain responsive to changing conditions. Behaviour change is therefore approached not as a single corrective action but as continuing alignment between readiness, mechanism, and context over time.

7. Theoretical Defensibility

Integrative models commonly face three criticisms: theoretical dilution, uncertainty regarding stage-based reasoning, and practical complexity when ecological factors are incorporated. The Eben Integrated Model addresses these concerns by maintaining distinct functional roles for each incorporated theory rather than merging constructs into a single explanatory layer. Integration occurs structurally rather than conceptually: readiness informs timing, behavioural determinants inform mechanism, and ecological systems inform leverage level. Each component retains its theoretical identity while contributing to a coordinated decision process (Davis et al., 2015; Nilsen, 2015).

Critiques of stage models often arise when stages are interpreted as fixed psychological categories. In the present framework, stages function pragmatically as indicators of engagement rather than stable mental states (Norcross et al., 2011; West, 2005). Their role is to guide intervention timing rather than classify individuals

permanently. This interpretation reduces categorical limitations while preserving practical utility.

Ecological frameworks are sometimes criticised for encouraging overly broad intervention strategies. The model addresses this by emphasising prioritisation: the level of greatest leverage is identified rather than attempting simultaneous change across all levels (Hawe et al., 2009). Structural considerations therefore guide focus rather than expand scope.

By assigning complementary roles to each theoretical component, the framework seeks to avoid reductionism while maintaining clarity. Theories remain distinct but coordinated, forming an architectural relationship rather than a blended construct. The model is therefore positioned not as a new behavioural theory but as a structured method for applying existing theories coherently in practice.

8. Cross-Sector Application

Readiness, constraint, and context can be interpreted as general properties of human systems rather than features limited to a single discipline. Consequently, the decision architecture proposed in the Eben Integrated Model may be applicable across diverse domains. In healthcare, patient engagement is influenced by psychological readiness, treatment feasibility, and service accessibility. In organisational change, adoption of innovation involves employee willingness, capability to perform new tasks, and supportive institutional structures. In education, participation relates to learner motivation, learning skills, and environmental support. Public policy compliance similarly reflects awareness, practical feasibility, and regulatory context.

Implementation research indicates that behavioural outcomes are often associated with interaction between behavioural and structural conditions rather than isolated influences (Lund et al., 2018; Michie et al., 2014). Information provision alone may be insufficient without supportive environments, while structural reforms may have limited uptake when engagement readiness is low. The model therefore offers a structured way of considering how these factors might be aligned within intervention planning.

Because the architecture is procedural rather than sector-specific, the intervention content varies across settings while the decision logic remains consistent. The sequence assesses readiness, diagnose constraint, select leverage level, and reassess can be interpreted as a general reasoning framework applicable to clinical practice, organisational development, education, and policy implementation.

The model therefore functions as a general decision framework rather than a discipline-specific theory. Its potential value lies in providing a consistent logic for navigating complex adaptive environments where behaviour emerges through interaction between individuals and systems.

9. Conclusion

Behavioural gaps across professional and social systems rarely arise solely from unwillingness. Individuals, organisations, and communities may demonstrate awareness and intention yet still fail to act. Implementation research suggests such gaps often reflect misalignment between readiness, behavioural mechanisms, and environmental conditions rather than absence of knowledge (Nilsen, 2015; Michie et al., 2011). Readiness models address engagement timing, determinant models identify behavioural constraints, and ecological frameworks describe structural influence; however, when applied independently their practical guidance may remain limited.

The Eben Integrated Model proposes a structured architecture linking these dimensions into a coherent decision pathway. By sequentially considering when action is plausible, what may prevent it, and where intervention may be directed, the model organises parallel theoretical explanations into a procedural reasoning process. This interpretation is consistent with research on complex interventions emphasising the interaction of behavioural and contextual factors (Hawe et al., 2009; Lund et al., 2018). The contribution therefore lies not in introducing new behavioural determinants but in arranging established knowledge into a structured application framework.

The model conceptualises behaviour as an emergent property of coordinated conditions. Motivation alone may not overcome structural barriers, and structural reform alone may not generate engagement without readiness. Adaptive action depends on alignment between timing, mechanism, and context. By translating theoretical constructs into procedural alignment, the framework offers a way to guide intervention planning across healthcare, organisational practice, education, and policy environments.

Accordingly, the Eben Integrated Model is presented as an integrative decision architecture rather than a competing behavioural theory. Its intended value lies in supporting coherent application of existing evidence within complex systems where behavioural outcomes emerge through interaction rather than persuasion alone.

Acknowledgement

The Eben Integrated Model is developed within the EBEN SYSTEM™ methodology. The term EBEN SYSTEM™ is used solely to denote the originating conceptual framework associated with the model described in this publication and does not imply endorsement by external organisations.

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