

A CONCEPTUAL SYSTEMS APPROACH TO POLICY PRODUCT INTEGRATION TO OVERCOME POLICY FRAGMENTATION

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Abstract

The policy integration and design literature have been divided into two separate, but complementary analytical domains: policy process integration and policy product integration. Studies on the former are vast, while studies on the latter are scant, even though a policy's textual content is an important mediating factor. Due to the limited study of policy product integration and the lack of valid and reliable methods, this paper contributes by adding a conceptual systems perspective to policy product integration, to overcome policy fragmentation. Policy content is an abstractable unit of analysis in both policy design and policy product integration, which makes it amenable to the systems-based integrative propositional analysis, which studies policy content as conceptual systems. The theoretical point of departure is that there are deep structural similarities between the domains of systems (including physical, conceptual, social etc.) and that the insights of one system allow for similarities to be exploited and transferred to understanding the other. These include the systems concepts and ideas such as, systems as open/closed, nestedness, interacting, emergence, evolving, and so on. This paper proposes that policy product integration should be studied as conceptual systems using the IPA method for analysing policy interaction and to build policy landscapes based on the policy mapping capability enabled by the IPA. To this end, an illustrative case of 3 Nigerian policies aligned to nutrition was used for the application of the IPA to study policy product integration. Based on the case and existing insights from the literature the study found: (1) the propositions in policy content provide a 'universal language' to facilitate policy product integration (2) there are various *modes* of interaction between policies in a policy landscape; (3) there are various *degrees* of integration based on the structure of the policy landscape, and (4) practical mapping can be used for collaborative policy making in parallel with the study of policy structure.

Keywords: Policy product integration, conceptual systems, integrative propositional analysis, policy coordination, policy design, policy mix.

1 | Introduction

In the progression of the field, policy integration has been divided into two analytical domains: (1) *policy process integration*, focusing on the structural and procedural setup of the policymaking system and (2) *policy product integration* (content), both focusing on integration of cross-cutting policies— where each might occur vertically and horizontally (Knill et al., 2020, also see Kaplanera, Knill and Steinebach, 2023: 5). The importance for this paper is the latter, because to cope with complexity, governments are required to streamline and reconcile their product of policy making (Knill et al., 2021), considering the adjacent policy subsystems, and be aware of policies' cross-sectorial implications. The problem, however, is that many studies focus on policy process integration and neglect the study of policy product integration using reliable and valid methods or approaches (de Wee and Ramolobe, 2025).

This paper attempts to overcome this problem by responding to Knill et al. (2021), who stated that first and foremost, the content of policies should be the focus of analysis in the hope for improvement. Earlier, Peters (1998) asserted that policy integration should be pushed to the forefront of policy design. This paper adopts

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a policy design perspective for its analysis, focusing on the policy content or the actual product (noun) (Howlett and Rayner, 2018; Siddiki, 2020; Linder and Peters, 1988). This is relevant for two reasons: first, because early research from Hall (1993, expanded by Cashore and Howlett, 2007) disaggregated policy into various components, which exist in a taxonomy of nested policy design elements. This work was important for the progression in policy design literature, which facilitated greater conceptual and empirical work (Cashore, 2022:1). The taxonomy of policy components model providing for a better understanding, description, and investigation of the internal complexity of the components of policies and their impact in real-world policy making (de Wee, forthcoming), which allows for a better understanding of the manner in which the components of policy interact and how these interactions can be oriented (policy mixes) (Migone and Howlett, 2025: 810). Second, Migone and Howlett (2025: 810) state that “many questions remain...such as how precisely to measure complex interconnections among policy objectives, means, and instruments within a policy mix to better analyse and design public policies”. de Wee et al. (2024) suggest that the answer, at least from a policy content perspective, lies in the valuable insights from systems approaches—in this case studying policy content as conceptual systems.

Contributing to the existing literature, this paper proposes systems thinking, which according to van Heijden (2022: 1) “(including system science and systems theory) [which] is a broad class of analytical tools and approaches that aim to map, explore, and interrogate the behaviour and outcomes of. In this class is also the idea of conceptual systems, which according to Wallis (2016: 579) is any form of theory, programme theories, policy model or *policy*, which is made up of a set of sentences, propositions. de Wee (2024) identify these as statements or directives in the case of policies which are found in the various components of a policy mixes such as the goals, means, objectives and instruments—that interact across various departments or policy domains and penetrate various levels of government. De Wee, Asmah-Andoh, and Jakoet-Salie (2024) make the case that because of the structural similarities between systems, these insights can be exploited for understanding other systems, in this case, how policy product integration can be studied based on the system-theoretic IPA methodology and conceptual systems.

The integrative propositional analysis method (Wallis, 2016; de Wee, 2024) is used in this paper as means to map the various policy statements or directives, to develop the system (concepts and their interactions/relations), both within, and across systems or policy sub-systems. Wallis (2019) developed the IPA to study the integration of theory, and this paper adopt his analytical perspective to study policy product integration. This systems-theoretical and IPA methodological perspective is also motivated, in part, because of the observation by Kaplaner et al. (2023: 4) that when it comes to the measurement and empirical assessment of policy integration, it can be seen as a latent concept, which means that it “cannot be observed directly or measured with a single indicator, but rather in the completeness of combining measures”. To this end, the objective of this paper is to *conduct and present a preliminary exploration of the study of policy integration from a conceptual systems (policy design) perspective, with the aim to use systems-theoretic concepts to understand the interactions of policies from different sub-systems and the implications for the real-world governance.*

This paper conducts an exploration of policy design, policy integration, and how policies can be seen as conceptual systems, which makes them amenable to the IPA. According to de Wee et al. (2024: 2) “studying policy design content as a conceptual system allows an abstractable unit of analysis for analysing the structural logic of a policy design” and they later call scholars to “focus more closely on policy integration”. They argue that “...the IPA allows for mapping policy propositions (statements), which allows for building a landscape of a particular policy subsystem with all goals, instruments, and targets as abstract concepts, and how they interact... (but also) measuring the total interaction and structure of the ‘integrated policy design’” (de Wee et al., 2024: 12). The IPA as a method provides a ‘common language’ between all policies because they are essentially conceptual systems. As such, the IPA is applied in an illustrative case study of Nigerian, with a focus specifically on the goals and objectives of the three different policies (aligned to nutrition) and how they interact (components being analysed). The focus is not on how effective the policies

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were in implementation or practice; the purpose of the analysis is to illustrate the possibility of applying the systems-based IPA in the case of policy integration from a content perspective, with the aim of providing an additional tool to study policy integration. The author is aware that such a study cannot provide comprehensive insight into the diverse factors of the effectiveness of the implementation and the design process based on such an analysis. At the same time, it is worth trying to realise the potential of studying policy content through a systematic application, as the textual content of policy is an important mediating factor for effective policy implementation with various roleplayed (Lejano and Park, 2014).

2 | Policy design and policy integration: establishing the unit of analysis

The aim of this paper is to explore and present the IPA as a method for studying policy integration from a conceptual systems perspective, focussing on policy designs as content. Therefore, it is important to conceptualise policy design and policy integration. In the 1980s, debate in the policy sciences led to a conceptual split between the actual process of policy making, in the analytical sense, and was distinct from the abstract concept of policy design as content (Linder and Peters, 1988). This established two separate analytical domains, which would be later defined through the heuristic: policy design as ‘verb’, which is the process of creating a policy, and ‘noun’, which is the actual product or artefact or content (May, 2003) or policy designing and policy designs themselves (Siddiki, 2020). This paper is embedded in policy design as content (designs themselves) tradition in which scholars developed various approaches and methods to study the policy content (See Siddiki, 2020 or de Wee, 2024 for historical background). These approaches and methods, however, focus on the policy content of individual policies. This is an important problem and will return to this later.

In the progression of the policy integration literature, policy integration was also conceptually split, with scholars studying it from various approaches. These are policy process integration and policy product integration. Policy process integration focuses specifically on the broader system of policymaking and its functioning in different policy sectors and how best to integrate and manage different institutions and their relations and the interlinkages between them (Knill, Steinbacher and Stenebach, 2021). *The policy product integration* approach is focused on (Knill et al., 2020) specific policies or policy programs (level of analysis), interested in the degree of integration of distinct policies and policy sectors (research object); examine the extent to which different policy frames, goals, and instruments are aligned to one another; both within and across different policy sectors (modality). Policy product integration can also be seen as ‘law-based integration’ which according to Metz et al. (2020) is integration on paper.

The focus in “policy product integration concentrates almost exclusively on the policies *themselves* and whether or not their design is capable of addressing cross-cutting policy challenges” (Knill et al., 2020: 10), with the aim to align policy variables (goals, objectives, instruments etc) (Candel, 2021). The aim is to create policies that will not be affected by internal contradictions or negative interactions across the different levels of government, including between the instruments, objectives and goals. Knill et al. (2020) suggested that policy product integration should be approached from the policy design perspective, and for the purpose of this paper, policy design-as-content is used as a unit of analysis for the study of policy integration with a focus on policy mixes or policy landscapes. The focus here is therefore not the policy process; it is, however, the content of the policies themselves

2.1 | The systems-based analytical concepts

This section discusses and synthesises various streams of research on systems thinking and public policy. De Wee, Asmah-Andoh, and Jakoet-Salie (2024) make the case that because of the structural similarities between systems, these insights can be exploited for understanding other systems, in this case, how policy product integration can be studied based on the system-theoretic IPA methodology and conceptual systems.

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Systems thinking is a construct that helps aid understanding (Cabrera et al., 2021: 20-21), and according to Shackelford (2014: 6), the first step towards effective policy analysis is to conceptualise multiple interconnected policies holistically as a system. Senge (1990: 133) added that “systems thinking allows for seeing the structures that underlie complex situations”. This is an important idea for understanding policy integration. Systems approaches can be seen as important lenses to study policy integration, as according to Louie (2017:9), different systems have the *same dynamics*, and one can use the knowledge arising from any of them to better understand the other system.

It is important to first understand what systems are and how or why policies and their content can be considered systems. According to [von Bertalanffy, 1969](#), p. 33), systems are “complexes of elements standing in interaction”, which can be physical or conceptual or a combination of both (Wallis, 2016). Burge (2004: 188) adds detail to the definition, stating that the elements are held together by bonds...(and these bonds are logical in the case of conceptual systems...and they are material in concrete systems”. Of importance is that “the collection of the relations among a system’s constituents is its *structure*” (Bunge, 2004: 188). Drawing on the line of soft systems thinking there are various systems based concepts that are relevant to the study of policy content as systems for examples, *emergence*, described by [Mingers \(2015: 30\)](#) as “Emergent properties of an entity are properties possessed only by the entity as a whole, not by any of its components or by the simple aggregation of the components”. The nature of systems especially living and social systems can be also be ‘*open system*’ in that it has a capacity to exchange information, energy and material in the course of both internal and external transactions ([von Bertalanffy, 1969](#)), which also bring another important concept of systems which is the idea of *boundaries*, between the system itself and its environment ([Luhmann, 1995](#)). Ackoff and Emery (1972), stated that the system is bounded and created to achieve its goal(s). Wallis (2020) also discuss that outside the boundary of one system, they can also be nested in other systems, describing nested as systems in combination with systems of systems to include the environmental complexity. de Wee (2024, drawing on Wallis, 2013) also made the case that systems are also seen as not static, but *dynamic*, and Ison (2008), argues that components (of a system) *co-evolve*, and are *nonlinear*, meaning they are interrelated, adapt to the environment, and reorganise its internal structure. This basic definition and conceptualisation also apply to policy content with insights from conceptual systems (*see* Wallis, 2013 & 2019), which is useful for studying policy product integration.

2.2 | Policy design content as a system

In Hall’s (1993) seminal work, he challenged the dominant view in policy scholarship, which conflated all the elements of policy into a ‘single variable’, he disaggregated the policy content and developed the taxonomy of policy components. Cashore and Howlett (2007) extended his work and developed the taxonomy of nested policy design components. According to Capano and Howlett (2024:2), “the levels included a high ‘macro’ level of abstract goals and means; middle or ‘meso’ level policy objectives and policy instruments, and ‘micro’ level of policy settings and calibration. Thus, adding three more policy components”. This work was a critical development in the progression of policy design scholarship, “facilitate(ing) greater conceptual and empirical work” (Cashore, 2022:1). This disaggregation of the policy content into various components or elements can also be seen as a system because they interact and create some *logic* (Howlett and Ramesh, 2023: 5). Recent literature also studied policy change based on the policy components. Howlett and Ramesh (2023) studied ‘static’ and ‘dynamic robustness’ looking at how various elements of policies change and made the case that changes allows for adaptation, and the under dynamic robustness allow adjustments, where a policy “modify itself and create new goals and *logic*”—meaning all the components change in the content of the policy. This brief background demonstrates that policies fall within the scope of the definition provided above. This body of work focuses on what exactly constitutes a policy and how these components fit together (Capano et al., 2021). However, much work has been done on these various components of policies and even entire policies themselves. Scholars have moved to the ‘new design’ orientation that focused on the fact that complex problems require multiple policies to solve

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the problem, and it ushered in the idea of policy mixes, which are of importance of grounding policy product integration.

2.3 | Policy mixes as interacting systems

According to Migone and Howlett (2024: 816) policy mixes, by definition, contain distinct types of policies and policy instruments with different characteristics. These policies do not operate in isolation and often influence each other (Maggetti and Trein, 2022), and according to Cunningham et al. (2013:2) policy mix thinking is concerned with the “composition of policies in the mix and how they mutually shape effectiveness...in particular the idea of interactions between policies is fundamental in the policy mix concept” or as others argue (Attwell and Navin, 2019; Del Rio, 2010), policy mixes are systems of interconnected elements susceptible to simultaneous mutual or reciprocal interactions. They often develop incrementally over many years (evolve or change) (Kern and Howlett, 2009). Policy mixes research studies multi-policy, multi-goal, and multi-tool mixes (Migone and Howlett, 2024), which is used to study policy integration and better understand these interactions. Despite these advancements, Migone and Howlett (2024) make the case that many questions remain, such as how to precisely measure the complex interconnections among policy objectives, means, and instruments to better analyse and design policies. This paper argues that policy integration can be advanced using a conceptual system perspective.

Empirically, there are various studies that speak to the ‘systems’ nature of public policies and their interaction. For example, integration can be explored through policy statements in different policies and how they support and conflict each other (Chinsinga and Chasukwa, 2015) or the interlinkages of legal documents (policies in this paper), focusing on mapping their interactions. According to Pham-Trufert et al., (2020: 921), this is important because incoherence leads to conflicting goals during implementation. For example, in the law-based integration (content) and policy coherence literature, there is the idea of *embeddedness* and interdependence. Howlett and Rayner (2007) talk about the idea that policies with multiple goals must be able to co-exist and must be mutual or reciprocal. According to Howlett et al., (2015), *interactions* in policy mixes can either be in conflict or synergy, where they reinforce each other’s effectiveness. The idea of a ‘policyscape’ by Mettler (2016) argue that no laws are created on a black slate and that they affect each other’s effectiveness. This is also true for policies, as policyscapes are cluttered with public policies that structure the political order and are susceptible to change from the external socioeconomic environment and the dynamics internal to the policies themselves (ibid: 370). O’Conner and Netting (2011) asserted that all policies are *nested* within layers of policies or nested structures of rules within rules, within further rules. Nohrsted and Weible, (2010: 8) discuss the notion that “[s]ubsystem boundaries are artificial constructs...(and) policy subsystems are interdependent”. The system perspective concurs with the assumption here and is the idea of an *open system*, which is nested and therefore interacts with each other. Policies collectively exist and behave as a system, meaning they are more than the sum of policies (Zambianci and Bedenkopf, 2024). As Gebara et al., (2019: 187) defined a *policyscape* as a “composition of policies in the mix, how they interact to mutually shape each other’s effectiveness in the landscape”. When these different subsystems interact, *emergent* outcomes that “occur at a different level of a system than the level in which the original interaction occurred” (Westhorp, 2012: 411). This is in-line with the idea of a macro-causal theory of multiple policies against a single causal theory of a single policy.

For the purpose of this paper, a policy landscape can be seen as a product of policy mapping, and interaction assessment that creates a ‘*spatial distribution of policy components or elements and their inter-sectoral (horizontal) and multi-level interactions (vertical)*’, as the outcome of the mapping policy statement from various policies (de Wee and Ramolobe, 2025). These include, for example, goals, targets, and instruments for different sectors and levels of government. This idea is of importance for this paper because it suggests that the internal dynamics of the policies themselves also affect the policy effectiveness, which makes the focus on the policy product (content) itself very important, though under investigation.

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The complexity of policy problems and the governance arrangements themselves are antecedents for the numerous and complex policies used to deal with these issues (de Wee and Jakoet-Salie, 2025). More of these policies have more moving parts that must work together if they are not to have unintended consequences or failure. It can also be argued that these policies collectively exist and behave like a system, and they are essentially more than the sum of its parts. Therefore, it is important to understand the interplay between these policies (Leach, 2021; Kern, 2019). However, little is known about how these policies interplay with one another (Maor and Howlett, 2022). This requires the analysis of policy interactions, in which this study proposes the systems-based IPA to study policy content as conceptual systems to “understand the relationships between policies and explore their interaction” (Zambianchi and Biedenkopf, 2024:6). Therefore, this study focuses on how these policies interact in a policyscape (Gebara et al., 2019) by studying policy mixes through an interaction-oriented lens (Zambianchi and Biedenkopf, 2024:4), which is also understudied in the literature. These interactions could be complementary, conflicting, or counterproductive, or, in other words, they can be negative or positive interactions (Gerber et al., 2009). It is important to be reminded here that the key goal of policy integration is to enhance the complementary effects across the policy system to ensure that the policy mix is in coherence with the governance arrangements (Mukherjee et al., 2021). Theoretically and conceptually, few key aspects emerge:

Proposition 1: policy design content can be seen as behaving as a system because it is composed of various components that interact internally.

Proposition 2: policies do not exist in isolation as the complexity of policy problems and governance systems themselves are antecedents that necessitates interactions between these policies, which can be seen as interacting systems.

This allows for the study of policy product integration from a conceptual systems perspective, which allows for the detection of policy interactions *ex ante*.

2.4 | Policy content as an empirical phenomenon and a pathway to study interactions

For a more concrete discussion, consider the definition of policy design content by Siddiki (2020: 1-2) as “the focus on structural and substantive features of the content” and Schneider and Ingram (1997:2) as the content or substance of public policy, which can be found in formal text-based documents. Various authors, albeit differently, allude to the fact that the content of policy has empirical phenomena that can be studied. For example, Schneider and Ingram (1990: 68) call this structural logic “the patterns in which the elements of a policy occur... (they continue that) “just as it is possible to diagram a sentence linking together parts of speech, it is possible to diagram the structural logic of a policy by showing the relationship among its elements”. The “linking together” aspect is what are called “assumptions”, which are logical connections that tie the elements together (Schneider and Ingram, 1997: 2).

In studying the causal logic of a policy’s content, Siddiki (2018: 222) suggested using the concept of *intra-policy compatibility*, however, this paper is concerned with policy integration, focusing on policy mixes, and therefore the other concept introduced by Siddiki (2020: 32) is *inter-policy compatibility*, which refers to the extent of alignment policies that govern common and different subjects, targets, and policy issues. Siddiki (2018: 221), from a policy conflict perspective, suggested that to overcome “inter-policy design conflicts, deliberate attempts should be made to map out the policy landscape in which new policies, or iteration of policies are being applied”. In addition, building a policy map can then “enable investigations into the likelihood of negative policy interactions” (Siddiki, 2018:221). Siddiki added that “policy mapping and interaction assessment should formally be incorporated as part of the policy analysis process” by specifically focusing on “evaluating the causal assumption (logical connections between policy elements) underlying policies” (2018: 221-222). Recall here, based on the definition of structural logic by Schneider and Ingram (1988) that “Just as it is possible to diagram a sentence linking together the parts of speech, it

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is possible to diagram the structural logic of a policy by showing the relationships among these elements”, this insight is important because it illuminates the ability to map the causal relationship between the policy components. Drawing on these insights together, the paper explores policy content from a conceptual system perspective and analyses it using the IPA method.

3 | Conceptual systems and the IPA process: loci and methods for policy integration

The IPA is a six-step process for “deconstructing” conceptual systems (in this case policy designs) into their causal propositions, mapping those relations, and then evaluating the structure of the internal coherence of the map. In this method, we quantify and diagram the structural logic of the conceptual system and find links between the measure of the policy structure and its effectiveness in the real world (de Wee, 2021). The structure is expressed as a percentage and for the purpose of this paper, a proxy to how ‘integrated’ a policy is. In the case of public policy, these are policy directives, statements, or propositions found in the policy. In line with Schneider and Ingram (1988) argument, these propositions or statements can be mapped/diagrammed. In conceptual systems, the concepts are placed in circles/blocks and the connections (representing the interaction) are represented using arrows.

As a brief overview, those steps are presented here. From Wallis (2016: 585) the terms are defined below:

1. Identify propositions within one or more conceptual systems (models, etc.).
2. Diagram those propositions with one box for each concept and arrows indicating directions of causal effects.
3. Find linkages between causal concepts and resultant concepts between all propositions (integrate propositions where concepts overlap).
4. Identify the total number of concepts (to find the Complexity).
5. Identify concatenated/transformational concepts (concepts with two or more arrows pointing to it).
6. Divide the number of concatenated concepts by the total number of concepts in the model (to find the Systemicity).

For an abstract example, consider the two policy statements from two different policies:

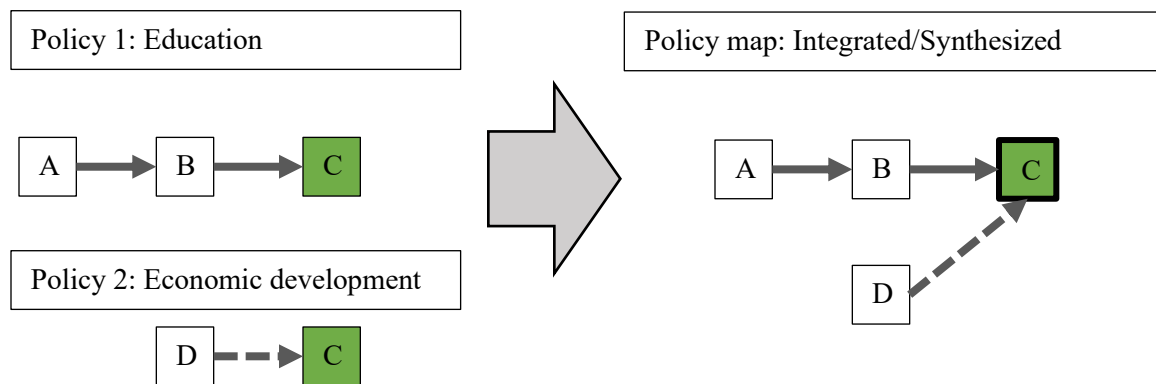


Figure 1: abstract representation of two the ‘integration’ of two policies.

Source: adapted from Wallis (2019)

Using figure 1 to evaluate the hypothetical policies with the IPA, policy 1 has a complexity of 2 and policy 2 a complexity of 2. Both has a systemicity of zero. However, the policy map of the integrated synthesised policy interaction has a complexity of 4 and a systemicity of 0.25, or 25% structured. Policy 1 and 2 together are more useful for achieving in practical application than policy 1 and 2 separately.

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Systemicity is a “measure of holism” (Wallis, 2013: 24); for the purpose of the current study, this will be an indicator/measure of integration between policies. Thus, in policy analysis, the formal measure of structure provided by the IPA (*see de Wee, 2024*) offers an additional lens through which we can measure policy product integration. The argument is that one can use IPA to investigate the policy statements (paragraphs and sentences) of a policy design and how systemic it is or how it all works together internally and their interaction as a system (or its structure).

4 | An Illustrative case study on Nutrition: three selected Nigerian policies

4.1 | Research method and design approach

This paper is a qualitative study adopting a case study approach. The case selection for the illustrative case is made up of 3 purposefully selected policies from Nigeria. The policies are: (1) the Agricultural Sector Food Security and Nutrition Strategy 2016-2025 (ASFSNS); (2) National Social Protection Policy (NSPP) 2017; and (3) National Policy on Food and Nutrition (NPFN) 2016-2025. These policies were purposefully chosen because they focused on food security and nutrition. These policies are important according to Billings et al., (2021) because they provide a pathway to address nutrition priorities and align the nutrition policy agenda in Nigeria. In their study, Billings et al. (2021) included these policies among others because of they are ‘cross-over’ documents focusing on nutrition and food security. These policies are also housed in various departments or ministerial jurisdictions and focus on different areas, including social, agriculture, and nutrition, all of which deal with nutrition and the governance thereof in Nigeria.

4.2 | Analytical approach

In the analysis, each policy was analysed based on its goals, and for the purpose of this study, goals were defined on a continuum based on the work of Petek et al., (2022). They argue that policy goals do not “comprise a single-lined hierarchy”, but rather on a continuum according to their technical dimensions, which include policy goals, objectives, and specifications (Petek et al., 2022: 732). Identifying the policy goals, each policy was analysed using the IPA and mapped according to its causal propositions using the causal markers in the text, exercising step 1 of the IPA. The propositions are tabulated in an Excel spreadsheet, Appendix 1. Thereafter, the map of each policy’s goals is created. Here, the excel spreadsheet with the causal data is entered into the mapping software kumu.io for visualisation of the system. After each policy is mapped individually in the case study, the data (different causal statements in excel spreadsheet) are integrated based on *overlapping concepts* in the different policies, and a larger map is created of the “integrated” policy landscape. This is based on the interaction of different policies based on policy statements. The larger policy landscape is then developed and mapped.

From the IPA analysis, a policy landscape is created as seen below in Figure 2. Based on the mapped policy statements, the map is created to visualise the different policy goals and their interactions; each policy is assigned a different colour in the map. The policy in ASFSNS (7 circles) is blue, the NSPP (18 circles) is orange (dark yellow), and the NFSN (37 circles) is green. The total complexity of the map is 62, and the concatenated concepts (the circles with grey spot inside it), is 7, thus the systemicity is 0.11. On the map the concepts/circles with the “purple shadows” are the concepts where there is an overlap between policies—it indicates *interaction*. This has external validity to existing studies, which have been found to be less than 0.25 (Wright and Wallis, 2019; de Wee, 2020; de Wee and Asmah-Andoh, 2021; de Wee, 2024).

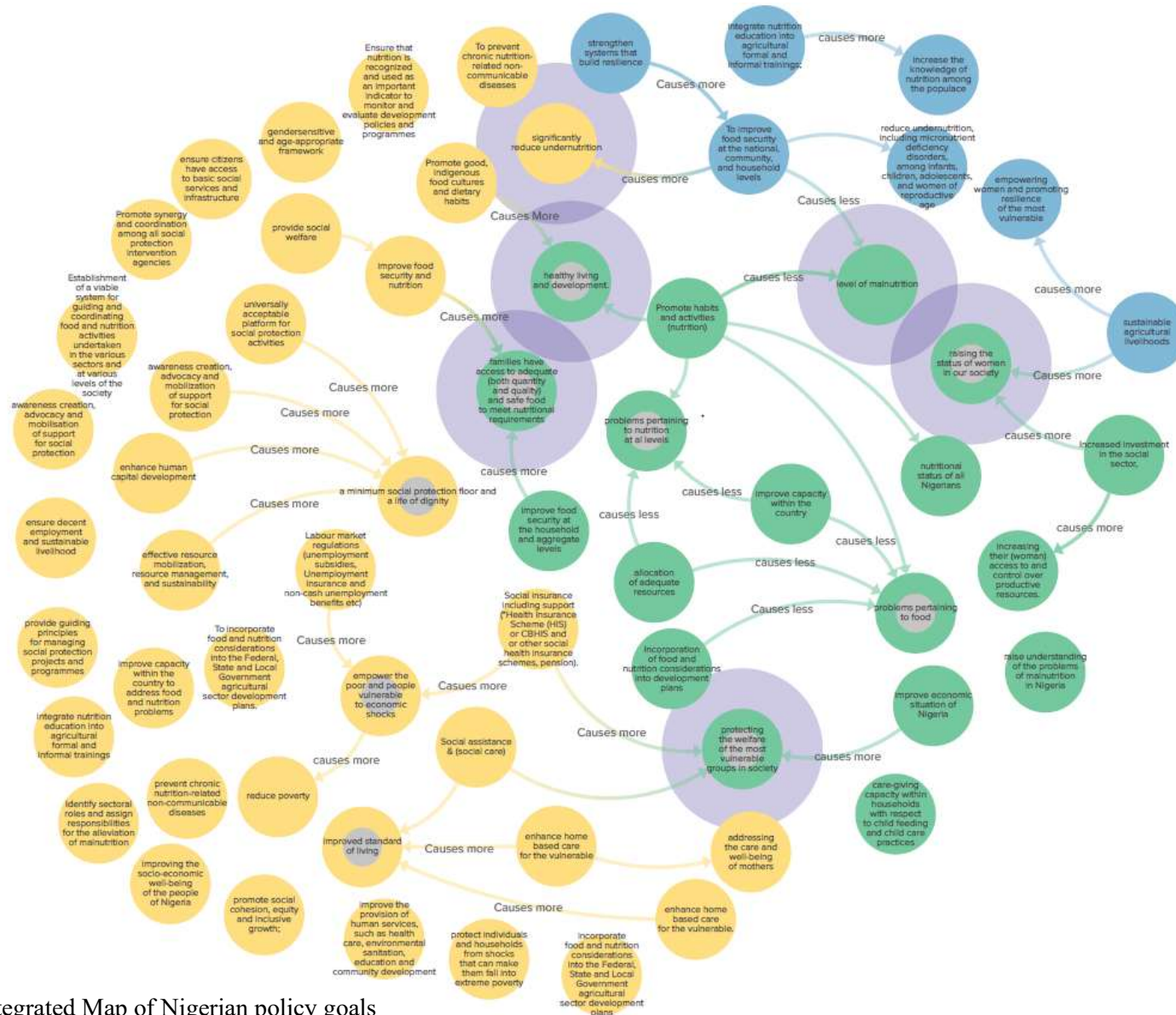


Figure 2: Integrated Map of Nigerian policy goals

Source: Author's own creation, available at <https://kumu.io/Guswn/integrated-map-nigerian-case>

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What is apparent from the integrated map is the fact that the ‘integration’ increases the number of concepts that are concatenated in general, as predicted by Wallis (2019). They also increase the number of arrows/causal relationships in the landscape, which, according to de Wee and Asmah-Andoh (2022), is important for increasing the effectiveness of the policies. However, from an individual policy perspective, the most unstructured policy is the NSPP (yellow), as there are various orphan elements with no relations to other elements. This could make implementation difficult because without a causal relationship that answers the ‘by who’ or ‘how to do it’ or ‘by when’ the implementation of it would be difficult.

Based on the policy landscape, there are only six (6) instances of ‘*overlap-interaction*’ between the different policy goals, which are indicated by the purple shadows around the concepts/circles. In this case, overlap interaction simply indicates instances on a policy map where two or more different policies have causal arrows pointed across different documents. The overlap-interaction is identified as the elements in the system where the different subsystems (individual policies) overlap in the elements they address. This is the focus of this paper, using the IPA to study policy content as a conceptual system to enable the study of policy product integration. Here, the overlap interaction is 6 against the 62 concepts, which is an integration of 0.09. From a system perspective, this indicates a very small structure that, in percentage terms, is 9% integrated. For policy product integration, the overlap between policy statements external from each other is seen as ‘concatenated’ as they interrelate or interact and therefore indicates ‘integration’ and which systemicity will act as the proxy for ‘integration’. The analysis is congruent with the findings of Billings et al. (2021), who found that there was a lack of clarity in the objectives and very limited alignment or coherence between the different policies. They Billings et al. (2021: 1578) reported a “lack of coherence for nutrition was more prevalent in policies and programmes in Nigeria” and found cases where nutrition indicators were missing or stated in only some objectives and with inconsistency in target populations. *Overlap-interaction* as identified through the inter-policy arrows interactions (two different colours connected to the same or different concepts) based on the IPA methodology creates a useful mode of interaction to identify and study various policy components, for example, policy means, instruments, objectives etc. The concept of overlap-interaction provides a lens through which different policy components in a larger mix overlap.

From this brief analysis, it is important to note that the focus of the illustrative case was to identify interactions between different policies based on their policy statements to create a policy landscape; it is not to evaluate its effects on the ground. The focus is on the output or product of paper, focusing on policy goals. The analysis aims at conducting and presenting a preliminary exploration of the method or approach for studying policy product integration. The analysis did not examine the details of each of the elements (concepts) in the policy landscape or each of the causal relationships (arrows) between the concepts or policies. Further study and analysis will be provided in the section on ‘*Implications, Insights, and Conversations for Future Research*’

5 | Summary and discussion

In this section, we discuss the various possibilities of the IPA for the study of policy product integration based on its analysis as a conceptual system. While this is a preliminary study, a few additional insights might emerge, such as the various types of descriptive analytical capabilities of the IPA for identifying various modes of interaction in the policy landscape and potential ways to measure policy integration, fragmentation, and potential implications for governance.

5.1 | Universal language for policy product integration

Remember that inter-policy compatibility is important for policy integration. This is because different policies can be analysed with the IPA and mapped based on the policy statements and the idea that because

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they all have propositions (statements), it becomes the generalisable feature between policies (in a policy mix), which, as discussed earlier, makes policies as conceptual systems amenable to the IPA. Two important aspects emerge here. First, the IPA can be used to study policy statements based on their propositions internally to the policy itself (intra-policy compatibility) and how different policy statements interact on paper between policies, based on their causal relation and fundamentally allow for inter-policy assessment and to understand how these statements fit together. The example here is illustrative that studying policies as a conceptual system based on its text, the IPA becomes a tool providing a ‘common language’ between different policies, enabling analysis and evaluation of the ‘integration’ among overlap-interacting and nested policies and across policy subsystems. For example, see an excerpt from the Nigerian case below, where the agricultural and the nutrition policies both address the same concept of ‘level of malnutrition’ both discussed in each policy individually but provide different instruments to achieve the goal.

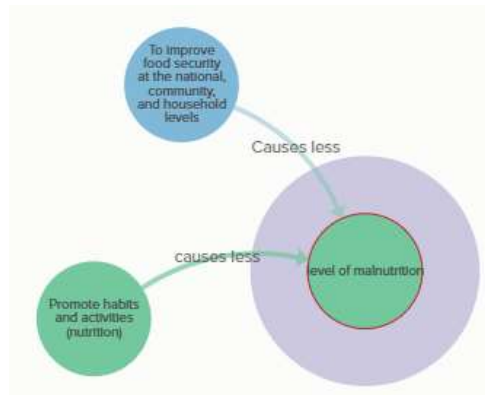


Figure 3: Experiment of overlap-interaction between policy elements

Source: Authors’ own creation

The strength of the IPA analysis is in its ability to study the structural logic of policy design content as a system of integrated subsystems, providing a reasonably objective path to study policy product integration among various policies in a policy landscape.

5.2 | Building policy landscapes through overlap-interactions of policy content

The IPA, which studies policy coherence, specifically focuses on the importance of concatenated concepts/elements as it establishes structure. For policy product integration, concatenated elements are those that ‘overlaps’ with the content of other policies. It is similar to what Cejudo and Michel (2017, in their 2023: 4) argue that from an implementation perspective, policy integration entails the implementation a concatenation of causal theories “...not just the causal theory that guides each policy” and that “...implementing an integrated policy requires the simultaneous implementation of different causal theories...or a macro-causal theory that sets out how these different components fit and interact”. Policy mapping allows for the building of policy landscapes that can be analysed. In their study (Cejudo and Michel, 2017), they found that even when individual policy policies are designed well, they cannot compensate for the lack of theory (causal structure) specifying how the components work together. What is clear from this case is that policy design as content can be seen as conceptual systems that make them amenable to the IPA methodology and can be extended to policy product integration because the focus is on propositions found in text that can be seen as a ‘common language’ between different kinds of policies in adjacent sectors. From a conceptual systems perspective, defining policies as multi-level nested phenomena is very useful, especially for policy design, as it helps explain the real complexity and

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difficulties involved in successful policy design. The IPA and mapping policy landscapes allow us to study the *embedded or nested relationships* between different policies.

5.3 | Modes of interaction and degrees of integration: a system perspective “what to look out for?”

Policies can be seen as complex systems that are greater than the sum of its parts (Cairney and Geyer, 2015:2), and the interactions of policies are nonlinear and difficult (Howlet and Rayner, 2013). The systems-based IPA method with its mapping properties can be used as a useful approach to deal with these complex nonlinear systems. Importantly, mapping helps to visualise the systems (policy landscape) and make insights more accessible (Wallis, 2020). Deconstructing the policy statements and reconstructing them in a map, which makes the policy landscape larger, also allows for establishing the causal structure of the system as a ‘whole’. Each policy instrument, goal, objective, and target are defined in a policy document, or a policy can contain various instruments. The mapping of the policy with causal relationships allows for modelling the potential interactive outcomes for studying intra- and inter-policy compatibility and conflict (Siddiki, 2018) by mapping and assessing modes of policy interaction.

Based on the maps constructed using the IPA, it is also possible to study various important characteristics. For example, based on the causal relations found in single sentences or inter-sentential within a policy or between policies, the study of several types of interactions.

Consider for example counterproductive and synergistic (reinforcing) interactions. The IPA focuses not only on causal relationships but also on directional effects such as causing ‘more’ or ‘less’ which are generally indicated with the words or a plus and minus sign. A *counterproductive* example, in a study by de Wee (2024), he studied Scotland’s Alcohol policy and found that they wanted to decrease the alcohol outlet density to decrease alcohol consumption; however, the licencing regime focused on approving more licences, which had conflicting or counteracting effects. In such a case, there will be both positive and negative aspects to the concept of alcohol consumption. Policies can also be *reinforced*, where a single concept has two or more arrows pointed to it, from two or more different policies. For example, using antismoking information campaigns and tax increases on smoke can reinforce the outcome and discourage non-smokers from starting smoking. Some elements of a policy on the map may not have any arrows pointed to or from it. These are called *causal orphans* (see various yellow ones in Figure 1). A study on the Drakenstein human settlement policy in South Africa identified various orphan concepts in the policy (de Wee, 2020). For example, after many farmers started retrenching their workers, meaning they had to vacate the farms the workers stayed on, the government was forced by the courts to include ‘emergency housing’ for farmers in their policy. This however had no interaction with the rest of the policy, and till today, people face many challenges regarding homeless farmworkers. Finally, *accidental interactions* could also occur, in which policies that might not explicitly mean to interact, but their interaction is analysed based on its structural logic using the IPA.

In terms of degrees of integration, what emerge is the idea of *density* (more elements and arrows on the map), *integration* (more causal relations and their interaction between the elements on the map), and *fragmentation* (few-to no interactions between the elements in the map) of the mapped landscape can also be deduced. For example, when there are many overlapping-interactions between policies and arrows, there is greater connectivity between the policy elements. This is the interconnectivity of the structural logic, which indicates the density. The proposition here is that the more hyperlinked or embedded the policy landscape is, the more integrated the policy is. The example of Nigeria indicates limited density or integration because it has a systemicity of only 0.09. The less the number of interlinkages between the various policy elements/concepts, the more fragmented. For example, if a policy has too many causal orphans, it has fewer connections if it has many counteracting relationships that could also increase its fragmentation.

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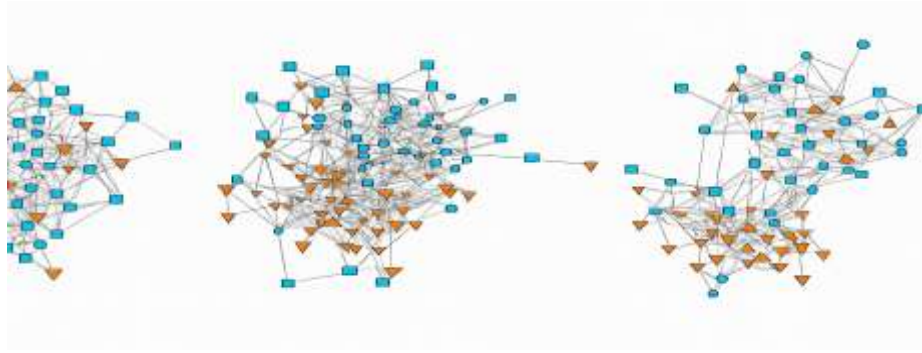


Figure 3: Graphic illustration (example) of policy integration to fragmentation on a continuum.

Source: Author

Consider figure 3 above. From the right side, the green and purple are integrated with various linkages and interconnections, and as you move left, the clusters of green and purple become less clustered together and more siloed. This approach places policy integration on a continuum from a system perspective. From integrated to fragmented. The argument is that the longer the pathway from one cluster of concepts to another, the more integrated is the integration; therefore, the closer the pathway, the more integrated is the longer the fragmentation.

Implications, Insights, and Conversations for Future Research

In this section, the focus is to discuss the insights developed from the previous sections to explore the various implications for public policy and governance based on these insights. In turn, this will lead to suggestions for additional research.

Implications for governance

Studies on policy design as content have been very limited, despite its important potential (Siddiki, 2020). Therefore, heeding the call is an important task because of its importance. This paper, like Lejano and Park (2015), makes a case for the focus on content because studies tend to neglect the fact that implementation is mediated by policy text. The idea is that implementation (or governance problems) can be derived from the nature and action of policy texts. The policy text is the intervening text that mediates action in the public sector. In policy integration, various policies and their interactions create relations between role-players in various policy subsystems and their directed actions. This idea is supported by Mettler (2016:3) work on policyscapes, arguing that the political landscape is densely clustered with policies, and these policies define how state power is organised and how governmental operations are carried out, which establishes the context in which these officials must operate and govern. From this paper, the argument is that propositions are written to construct new situations or existing action situations, and they may correspond to an observable action situation/implementation. These observable actions or outputs serve as measurable results produced by the public policy, which links the public policy to the desired outcomes and serves as a proxy indicator for the outcome (Koontz and Thomas, 2012). This argument also draws on the work of May and Jochim (2013), who argued that governance systems are interconnected action situations where the various policies create a governance landscape that has many action situations (individual sub-systems in various ministerial jurisdictions and at various levels of government) that structure the governance arrangements. These implementation structures allow for mechanisms to address collective problems through collective action, including coordinating authorities, intergovernmental and other partnerships, networks of private and public entities, and contractual relationships (see May and Jochim, 2013: 435). Role players embedded in the text of a policy in different policy statements can also be identified and their

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different actions. The systems-based analyses and measures provided in various policy documents and their cross-referencing statements can provide important insights for scholars and practitioners alike. The different policy instruments and their interactions across the policy landscape and their specific outcomes on different policy objectives across the different policies simplify decision making in some sense.

For governance as such, these measures, feedback and insights that emerge from the policy interaction assessment provide for improved knowledge where duplication or redundancies are clearly identified, and it assists with identifying synergies, fragmentation and coherence (Candel and Biesbroek, 2016). For public officials and politicians, the descriptive and diagnostic data derived from these measures and maps can reduce uncertainty and improve transparency and coherence while easily identifying contradictions or counteracting interaction, inconsistency and conflict (Nilsson and Person, 2003). For example, policy integration analysis under which integrated policies are described as “*creating a new logic...and make decisions based on the needs and priorities of a set of policies and organisations, that would determine decisions such as targeting, budgeting etc*” (Cejudo and Michel, 2015). This is in line with the systems-based concept of *emergence*. For governance, this would mean programmes and projects that emerge from the policy should all be subjected to the larger policy landscape as it becomes “*a decisional logic applied at every level of management and stage of the policy process*” (ibid). The policy landscape as the abstracted unit of analysis allows for a decrease in policy conflict across levels of goals and policies and between different levels of goals, policies and levels of government” (Howlett and Del Rio, 2015: 8)—which in turn advance governance on the ground. Insights from such studies can provide important collective action that defines current governance arrangements to deal with complex multifactorial and multicausal problems.

The insights gained from the various types of interactions are useful for both types of integration. Taking the discussion further than the illustrative cases, the modes of interactions and structure of the policy landscape can help understand, investigate, and improve the quality of public policies, including their clarity and feasibility, as well as their interactions in terms of how complementary they are based on reinforcing and counteracting causal relations. Gaps and/or distance, fragmentation, and counteracting policies can weaken governance to reach the policy objectives.

Implications for policy integration

With the measures outlined in this preliminary study, there is certainly potential for investigating, maintaining, and updating the larger policy landscape over time. This is important as the internal coherence (logic) and the policy interactions as when “policy designs do not address the logical circumstances of the context it is doomed to fail” (de Vries, Nemeč and Junjan, 2020: 16) as the system governs itself according to the logic internal to the text (Lejano et al., 2018: 17). De Wee (2024: 267) concurred that the outcomes of a policy (or the outcomes of the application of the policy) seem to reflect the systemic nature of structural logic; if the logic fails, the real-world system fails. This conclusion is not different for policy product integration and policy landscapes. Therefore, in the policy process, the IPA and proposed measures can be used to evaluate policies. Their interactions can then be assessed, and when new policies are created that affect other policies in the landscape, potential interactions can be mapped.

This is supported by Siddiki and Curley (2022: 2), who argue that the one constant in policy designs is that they always evolve over time as the context changes. With the measures outlined in this preliminary study, there is certainly potential for investigating, maintaining, and updating the larger policy landscape over time. Policy design and their interaction are therefore *inter-temporal* (evolving), meaning that they change and could affect the effectiveness of policies. Based on the decomposition of policy content, it is possible to analytically observe the interaction over time and visualise the policy dynamics over time (Howlett et al., 2024). From an IPA and policy statement perspective, it is possible to study the change based on policy layering that includes patching (new statements without readjusting previous policy), packaging (layering new statements while terminating others to readjust previous policy), and calibration (making changes to

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text within the statements (Ambrose et al., 2024). From a conceptual system perspective, it is important that even during policy change and evolution, the structure of the landscape is maintained and counteractive or fragmentation is minimised. Therefore, running the IPA analysis parallel in the policy process could help maintain the systemic structure (de Wee, 2024). Future research should explore this idea by tracking various policies individually and over time to study different interactions and their outcomes.

This is because very few policy evaluation researchers have taken up this challenge. In addition, there is a lack of frameworks to measure the success or failure of integrated policies (Candel, 2017; 2019; Cejudo et al., 2021). The argument is that several interactions among policies and organisations that make it difficult to uncover the precise effects of policies (Cejudo et al., 2021: 975). This paper argues that policy mapping based on policy content and studying policy designs as conceptual systems using the IPA can allow for this. In part, it also draws on the insistence of Siddiki (2018:221-222) that, based on policy mapping and interaction assessment, policy evaluators should be “evaluating the causal assumption (logical connections between policy elements) underlying policies”. The idea is that in ex-ante policy evaluation, greater policy product integration is expected as an output. However, tools for such evaluations are lacking. The IPA provides a new avenue for ex ante and ex post evaluation. The IPA maps causal relationships between different policy elements, as captured in the content. These elements and their causal relationships are actionable and measurable. For example, more specific objectives create clear, measurable objectives. The type of interaction based on the proposed measure provides insights into potential conflicts, tradeoffs, and/or reinforcements. Second, ex post, these policy statements and their different targets, and outcomes can be measured with on-the-ground outcomes. For example, each policy statement encapsulates various actions for government implementation. The data (from traditional policy evaluation outcomes) or research is important here as it supports the causal structure (arrow) between statements. If the data do not support the causal arrow between statements, this interaction fails. Actionable and measurable interactive policy statements can be measured and provide additional feedback mechanisms to maintain the structure or coherence of the policy landscape.

Limitations of the study and areas for future research

As with any methodology, the IPA has limitations. This is more so because the method is in its early stages of development. However, as explored in this paper, the IPA has the capability to study the content of policies and their interactions horizontally and vertically. The IPA is useful for policy product integration in paper by studying the structure; however, it should not be used in isolation. Existing methods and approaches should also be used; in particular, data should be used both to ‘establish’ the validity of a causal relation and to evaluate the implementation of the causal relation based on data. This will also ground the policies on context-based and relevant data. For example, various policies have different types of data to support propositions in policy text. This must be ascertained before the mapping can occur; otherwise, it is just empty text. The IPA focuses specifically on the text and does not ‘categorise’ the text-data into the various components based on Cashore and Howlett’s (2007) taxonomy. This would require a second step in the analysis, which future research could undertake. Further, for the study of the evolution of the policy components and text, longitudinal studies can be conducted where the policy landscape is mapped across various instances of amendments and the effects can be studied, which would also allow evidence for the potential of the IPA to evaluate policy based on the interacting-propositions in policy text. The IPA is in the main manual, which makes for a lot of data, and integration is a bit difficult at this stage; hence, this exploration only focused on three policies, specifically on their goals, objectives, and targets components. Focusing on the potential to automate the analysis of policy text can be useful, as seen with Institutional Grammar 2.0 (Frantz and Siddiki, 2022). Furthermore, more study is needed on specifically the instruments in policies and their interaction to respond to the call by Moar and Howlett (2021) calling for an ex-ante or pre-implementation analytical tools to study instrument interactions. The cases used here are three in one country; therefore, more studies across different countries could be done to establish analytical generalisation for the IPA, conceptual systems, and the study of policy product integration. Finally, the

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focus of the IPA is specifically on explicit knowledge and does not really focus on tacit knowledge. This is a limitation because policy content does not only exist on paper but also emerges when implemented by street-level bureaucrats. However, the IPA does have the capability to map interviews or reviews (Wright and Wallis, 2019); therefore, post implementation, these can also be mapped onto and update the larger policy landscape.

Concluding remarks

The present paper applied the IPA to an embedded case study of Nigerian policies that have an impact on food security and nutrition in which the IPA was used to map the content of the different policies and their interactions. The aim was to conduct and present a preliminary exploration of the of the study of policy product integration from a conceptual systems perspective with the aim to propose the IPA as a method for studying policy integration from a policy design perspective. With a relatively small sample and the exploratory nature of this study, "...limits the certainty of the conclusions that may be drawn" (Wallis, 2020: 91), which is partly because we are closer to the start of this area than the end.

The paper has achieved its purpose of conducting and presenting a preliminary exploration of policy integration from a conceptual systems perspective by using the IPA to study and map policies and their interaction based on policy content, adding an additional perspective to the study of policy product integration. In doing so, the paper achieved its objective and presented the IPA and the view that conceptual systems and their systems-theoretic insights can be useful for the study of policy integration and, importantly, illustrate how policy product information can be studied and the importance of text as a mediating factor for governance and public administration.

Based on the illustrative case and synthesis with the existing literature, various modes of interaction and structure of the policy landscape emerged, which could provide insights for governance and public policy. For example, overlap-interactions identified through the IPA provide leverage points for integration where either there is concatenation in the goals (policy integration) or in the means or instruments in the implementation stage. Providing a theory that specifies how the different policies interrelate (Cejudo and Michel, 2017). Further, it can also help identify the roles of various agencies in the multi-level governance system and which goals/objectives they work on together. The causal directions can also help identify synergic, counteracting, accidental, or orphan concepts in the policy landscape, which could provide insights for policy designers' ex-ante. The structure of the map allows for the analysis of the degree of integration, and the potential to study it longitudinally to trace the evolution or change could also provide insights into the level of integration, from fragmented (various policies relatively distant from each other with few causal arrows on the map such as in the case study) or integrated, which would be the opposite; however, those interactions could also be counteractive. This approach provides a qualitative content analysis of policy mix interactions and their potential impact on governance.

Modern states have various policy subsystems, including transversal goals for dealing with problems such as sex equality, climate change, public health, migration, and so on. These subsystems are also nested in multi-level governance structures, for example, how they are integrated vertically, across levels of government and horizontally, between ministerial jurisdictions. This suggests, for example, that public health policies are nested in larger national/central government policies. Studying policy integration from a conceptual systems perspective through mapping it with the IPA allows for the analysis of policy statements, within and across policies from which a conceptual representation and contextualisation of different role players and actors in the policy environment, their role, how they interact and the systemic boundaries of policies, at least at a conceptual level ex ante, emerge. Finally, using a systems-theoretic perspective to study the underlying structural logic of policy designs and their interactions allows for the elicitation of key policy insights for policymakers and practitioners.

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