What's in a doughnut? A critical analysis of 'functions' and 'rules'

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INTRODUCTION

Market Systems Development (MSD) is a well-established approach to designing and implementing sustainable and scalable development interventions. MSD interventions leverage the incentives and capacities of existing actors in the system in order to deliver impact. The main concepts used for analysing systems in the MSD approach are *functions* and *rules*, represented visually in the Market System Diagram or 'doughnut' in Figure 1 (Springfield 2015).

These concepts are very useful for what in MSD is referred to as 'diagnosis': taking a rapid overview of what matters in a system, and getting to the causes of underperformance that we want to tackle.[3] But this paper will argue that these concepts are less useful when we want to be more precise about a system, as we do when designing interventions, and in measurement and evaluation. Two explanations for this are proposed. First, the concepts are not clearly defined. And second, they aggregate various distinct actions without being explicit about those actions.

The consequences of this are not trivial for the practice of MSD. Doughnuts are often produced by external consultants in the early stages of MSD programmes, then left to sit on a shelf to go stale (Lomax 2020). It is monitoring and results measurement (MRM) that takes over to drive decision-making, and MRM systems usually contain little of the information about functions and rules that was gathered

Figure 1: the doughnut with core, supporting functions, and rules

during diagnosis. This is at least in part because the system map presented in the doughnut is not easily translated into the language of monitoring and results measurement, and vice versa. Hence the system often disappears from the picture as we start to focus on interventions, with consequences for our understanding of how our interventions impact the system.

This paper critically analyses functions and rules to improve our understanding and operationalising of these foundational MSD concepts. Actions & Actors Systems Mapping (Lomax 2022) is used to frame this analysis. The argument of this paper is that supporting functions and rules can be explained in terms of actions, actors and resources, and that this helps us to understand more precisely what supporting functions and rules actually are so that we can ensure that the system stays at the centre of MSD programming.

GREAT IDEAS, AMBIGUOUS DEFINITIONS

Core and supporting functions are the heart of MSD. They are used in the Operational Guide to define both market systems and systemic change. We set out existing definitions here, using the glossary on p56 and 57 of the MSD Operational Guide (Springfield 2015).

*"A **market system** is a multi-function, multi-player arrangement comprising the **core function** of exchange by which goods and services are delivered and the **supporting functions** and **rules** which are performed and shaped by a variety of market players."*

*"**Market system change** is a change in the way **core functions**, **supporting functions** and **rules** perform that ultimately improves the poor's terms of participation within the market system."*
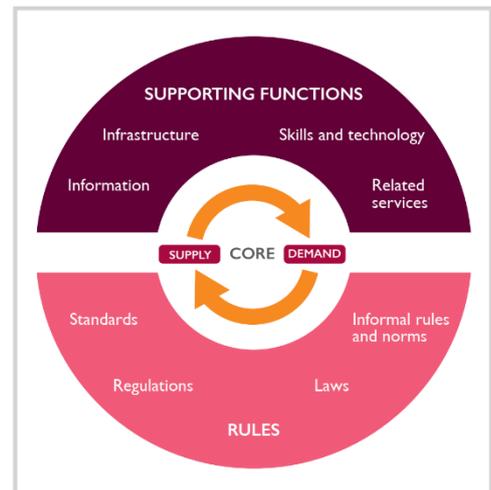
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[3] See Springfield (2015) and Lomax (2021) for explanation and analysis respectively of the diagnostic process.

It's clear the core function, supporting functions, and rules are at the centre of what we're trying to do in MSD. But what are they, exactly? This is what the Operational Guide has to offer:

*"**Core function**: the exchange between providers (supply-side) and consumers (demand-side) by which goods and services are delivered at the heart of a market system."*

*"**Supporting functions:** a range of context- and sector-specific functions that inform, support, and shape the quality of the core function and its ability to develop, learn, and grow"*

*"**Rules:** formal (laws, regulations and standards) and informal (values, relationships and social norms) controls that strongly define incentives and behaviour of market players in market systems"*

In short, the <u>core function is an exchange</u>, <u>supporting functions are functions</u>, and <u>rules are controls</u>. But the Operational Guide also shows us how supporting functions and rules are also the core function of supporting market systems. Supporting functions and rules must, therefore, also be exchanges.
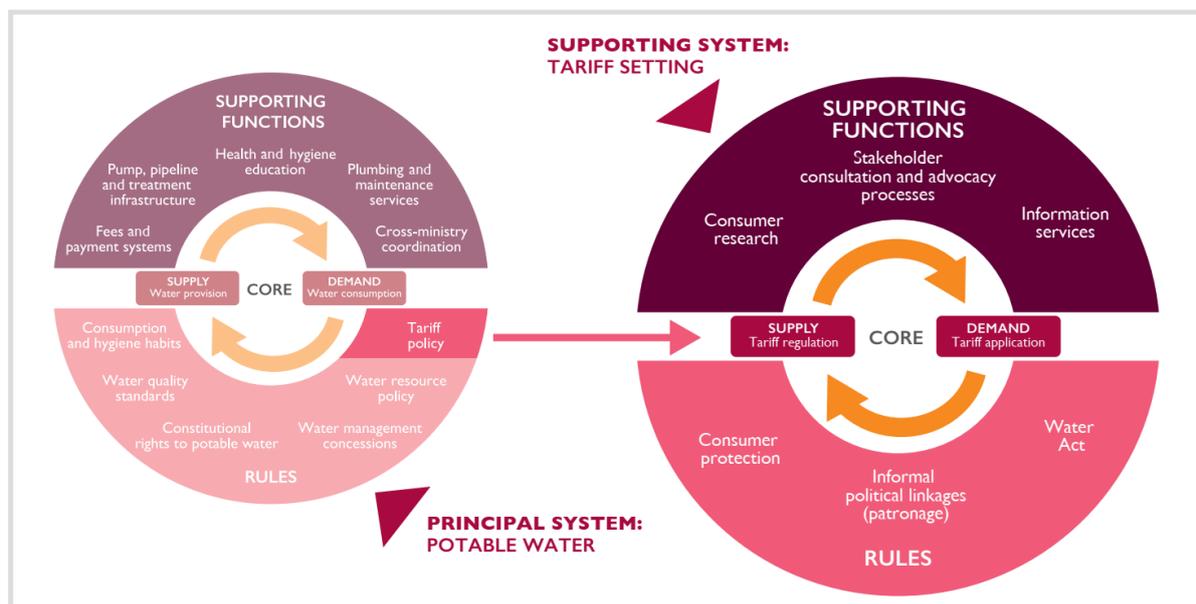

Figure 2: 'Supporting market systems' from p16 of the Operational Guide

Figure 2 above is used in the Operational Guide to attempt to illustrate how the 'tariff policy' rule comprises an exchange. In so doing, 'tariff policy' is relabelled 'tariff setting'. On the supply side is 'tariff regulation' and on the demand side is 'tariff application'. But what is the actual exchange? Who is giving what to who? The production of tariff regulations, the setting of tariff levels, and the application of tariffs seem like three different actions rather than distinct parts of one exchange. For instance, 'tariff application' on its own represents a comprehensible transaction with a supply side (water providers levy tariffs) and demand side (consumers pay tariffs), but presumably this is part of the core of the potable water system itself through which consumers pay for their water.

We also see inconsistency in the articulation of functions. Look back at the potable water system (the left-hand side doughnut in Figure 2). Two of the supporting functions are resources: 'infrastructure' and 'payment systems'. Three look more like exchanges: coordination, maintenance services, hygiene education'. Another doughnut on page 3 of the operational guide (replicated as Figure 1 above in this paper) has the same duality.[4] Thus while we have a definition of function based on exchange, there are many applied examples where the function is a resource.

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[4] In Figure 1, information, infrastructure, skills and technology are resources, while 'related services' are exchanges.

While an associated exchange is implied, the ambiguity allows great freedom of scope in what can be specified as a function or rule. This freedom is often useful, but we have already seen with 'tariff policy' that this can also create problems. A second problematic example we see in Figure 2 is 'consumption and hygiene habits'. Again, it is not obvious how we might think of such habits in terms of an exchange.

The cause of the conceptual murk surrounding doughnuts is two-fold. First is the abstraction from actors. Doughnuts operate squarely in the realm of resources and actions. There are many advantages to this – in using a doughnut for diagnostics you can focus on what's important and worry about who is doing what later. You can talk about actions that no-one is doing, and enormously complex, multi-actor actions like 'coordination' can be reduced to one word. The second cause of conceptual murk is the absence of production as an action. We've reduced everything to actions and resources, and so all production or destruction of resources is collapsed into the supply or demand sides of a transaction.

All this is great for diagnostics, for generating a quick understanding of important aspects of complex systems. But the lack of clarity isn't necessary. We can create better definitions that more closely reflect the realities on the ground. In tightening up definitions, we seek to make doughnuts more useful as they can link straight into implementation strategies and measurement systems. And we hope to demystify doughnuts, and so make them easier to use.

UNAMBIGUOUS CONCEPTS FOR ANALYSING SYSTEMS

Let's get out of the doughnut and into the reality on the ground. That empirical reality comprises three things:

(1) **actors** – human beings in their various social groupings (individuals, households, firms, government departments, etc)

(2) **actions** – the things actors do (communicate, buy, sell, bring up children, get educated, etc)

(3) **resources** – the things actors have (information, skills, cash, land, tractors, social capital, employees, codes of conduct, moral frameworks, etc)

These concepts will be used to investigate what, exactly, functions and rules are. *Actions and Actors System Mapping* (Lomax 2022) presents a grid with actions on one axis and actors on the other – see Figure 3. Resources aren't always shown, but they are embedded within the actors who possess them, and are transferred or transformed through actions. Populating the grid allows us to show unambiguously who is doing what within the system. These systems maps are used here to set out an understanding of functions and rules.

Figure 3: the format of Action & Actor System Maps

AN EMPIRICIST GUIDE TO FUNCTIONS & RULES

Here we take 'tariff policy' from the example above and describe it in terms of actions and actors. How can we represent the reality of a typical potable water system and the link to tariff policy? We describe it here in five actions:

1. Water authorities *produce regulation* that governs the process for setting tariffs.
2. Then the same or other water authorities periodically *set the tariffs* that will apply. This 'production' of tariff levels may involve synthesising information and opinions collected through some formal consultation process. Any such consultation is included within the 'set tariffs' action.
3. Water authorities then *communicate tariff levels* to water service providers and to customers.
4. Customers *access water* from water service providers, paying with money in exchange. This may be either for a fixed fee or through a unit consumption basis.
5. Customers then *consume water*, whether by drinking it, flushing it, showering in it, or any other use.

This description of systems as a sequence of actions forms the basis for Actions and Actors Systems Mapping. The sequence of actions goes up the left-hand side of a grid, and we set out actors across the top. Importantly, actions come first, and we define actors by the sorts of actions they do.

Each column in the table then summarises all the actions done by each set of actors. This includes production or consumption[5], and one side of any exchanges they are involved in. It also shows the resource outputs and inputs from each of the actions.

Actions / Actor sets:	Water consumers	Water service providers	Water authorities
5. Consume water	↑		
4. Supply/access water	D➔	←S	
3. Communicate tariffs	D➔	D➔	←S
2. Set tariffs			↑
1. Produce tariff regulation			↑

Symbol	Meaning
↑	Action: production
D➔	Action: exchange. Actor is on the **demand side**
S➔	Action: exchange. Actor is on the **supply side**
▫	Resources – the net output of previous actions, and input to subsequent actions

Figure 4: Actions & Actors Systems Map - potable water and water tariffs

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[5] Following Boulding (1945), consumption is used here as synonymous with destruction, rather than purchase.

UNDERSTANDING FUNCTIONS

We have seen that the current definition of function suggests it is an exchange, but it is also commonly used to refer to a resource. Using Actions & Actors system maps, we can describe quite precisely which actions by which actors, or which resources belonging to which actors, are to be considered a function.

There are at least three choices as to how to define function, also illustrated in Figure 4 below.

We can aggregate the supply and demand side of exchanges and call this a function. This would be an **action-centric** definition of a function, which corresponds to the current Operational Guide definition. An example of an action-centric definition would be *"dairy farmers sell milk to consumers"*.

An **actor-centric** definition aggregates by actor sets. In this case multiple production, consumption and exchange actions by the same actor set are defined as comprising a function. An example of an actor centric definition would be *"dairy farming"* (involving perhaps buying feed, accessing health services, milking cows, selling milk).

Or we can do a bit of both, and have **multiple actions by actor sets** on both sides of an exchange considered a function. An example of a multiple actions and actors definition would be *"dairy farmers produce and sell milk to consumers."*
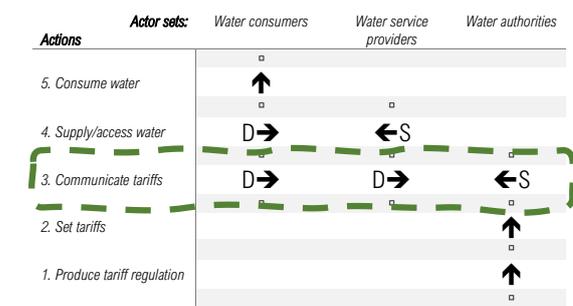
While in practice usage of the term 'function' varies, we often see core functions being 'multiple', and supporting functions being actor-centric. We don't need to choose one definition of function, and the intention here is not to prescribe any particular usage.

The argument is rather that however we think of functions, at some point we need to translate them into the language of actions and actors in order to design intervention strategies and measure impact. Doing so early can also help unpick complex transactions so that core and supporting functions have some clear link to empirical reality rather than being abstract constructs.
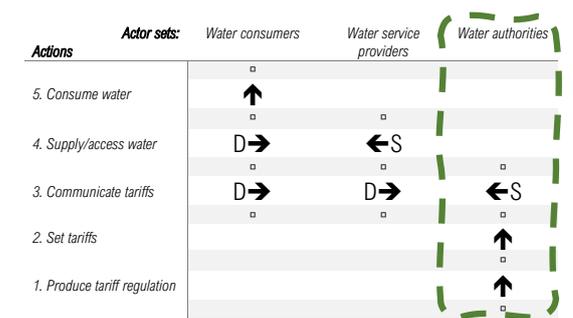

Figure 5: Three ways of understanding functions

UNDERSTANDING RULES

It is helpful to understand that all that has been set out above about core and supporting functions also applies to rules. It is useful to remember that rules and norms are a sub-category of functions. A rule or norm is a particular type of information resource, which can be produced and exchanged in a similar way to resources in any other function. We have just seen this by using the
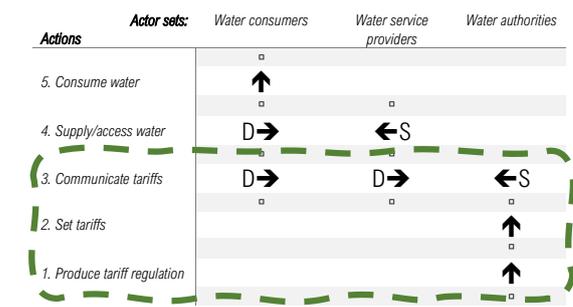
tariff policy 'rule' example to analyse functions. Rules and norms often contain information that tells you about what you might expect the *future* actions of others to be.

Formal rules tell you what you might expect the actions of government or other formal authorities to be with respect to the resources and actions governed by that rule. For example, if you use banned fertiliser, you may expect that an inspector will fine you. Informal norms are the information you have that tells you what you might expect in terms of social sanction or reward. For example, if your neighbour discovers you are using banned fertiliser, norms incorporate information about how likely it is they will tell the inspector, how likely it is that they will stop inviting you round for tea, and so on.

Rules and norms are powerful in shaping behaviour, because they play an important role in determining the outcomes of particular actions, and hence determining incentives for changing or not changing behaviour. As such, the rules and norms that are important in any particular instance will sometimes not be apparent until we know who needs to change what behaviour [i.e. when we are trying to understand system dynamics]. Supporting functions, on the other hand, are more often related to inputs and so are often more obvious sources of underperformance in a 'snapshot' of the system as it stands.[6]

PRECISION VS IMPRECISION: WHICH LANGUAGE TO USE?

Supporting functions and rules as concepts incorporate a *useful imprecision* (Lomax 2021). It is not always necessary or intuitive to break down something like social norms or market coordination into its composite resources and actions. When initially investigating a system in the diagnostic process, it is useful to gloss over this detail so that we may progress quickly to finding the areas in which underperformance lies, and the areas we wish to improve through intervention.

But once we know those areas, when it comes to intervention and measurement, we need to understand more precisely how things work in a system, and locate more precisely the causes of underperformance. The slight opacity about how things work inherent in the aggregate concepts of functions and rules is no longer useful. A move to the level of actions and actors allows us to disaggregate, measure underperformance of each action, understand the causal pathways within a system (see Lomax et al 2021) and formulate detailed intervention strategy.

CONCLUSION

This paper has set out a critical analysis of the MSD concepts of core functions, supporting functions, and rules. The paper described how these can be represented in terms of actions and actors. Doing so illustrates how core functions are conceptually indistinguishable from supporting functions. Rules or norms are also conceptually identical, except in so far as these refer to a particular type of information resource. Representation of systems in terms of actions and actors also shows how we may define functions or rules in three ways – action-centric, actor-centric, or 'multiple' (multi-action & multi-actor). Moving to a language where we are specific about the system in terms of actions or actors is key to detailed work such as intervention design or impact assessment. More clarity on the underlying concepts is also helpful for wider application of MSD, may support improved understanding of the links between MSD and other approaches to international development, and may improve links to conceptual frameworks used in wider social sciences.

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[6] See Lomax (2020) for more on the distinction between snapshot systems analysis and analysis of systems dynamics.

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