

Transaction chain diagrams

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Abstract

Transaction chain diagrams (TCD) bundle money flows with product or service flows, so that they can be traced for examination and/ or adjustment purposes.

1 Introduction

Transactions are coupled flows of ‘give and take’ — for instance, goods or services flow one way, and money the opposite way. Taken together, transactions can form long chains where ‘fairness’ (as in ‘fair trade’), omissions, or cheating and other vices may settle in. So, there is a motive to discover and display transaction chains in a clear and unambiguous graphical way, similar to the standard ‘purchase transaction’ application of the ‘exchange’ symbol of [Odum and Odum \(2000, p.26\)](#).

2 Generic TCD

If money is considered as a special type of information, it is possible to add money flows to concise process diagrams (CPD) through ‘information’ pathways ([Perdicoulis, 2013](#)). A new, dedicated type of ‘transaction chain diagrams’ (TCD) disengages the use of the ‘information’ pathways for other commodities, and features specialised monetary pathways (Figure 1).

‘Entity 1 (that has a certain function) pays Entity 2 (which has its own function) for a product or service that Entity 2 provides to Entity 1’.

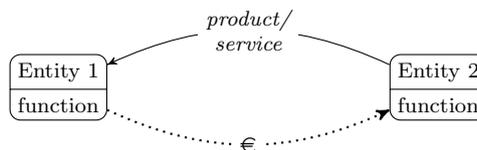


FIGURE 1 Generic transaction chain diagram (TCD)

3 TCD rules

The conventions of the ‘node–flow’ TCDs, illustrated in its simplest form in Figure 1, are displayed in Table 1.

SEMANTIC CATEGORY	TEXT	EXAMPLE	GRAPHIC
Transaction node	actor (upper); function (lower)	author (upper); research and writing (lower)	Entity function
Resource flow	product or service	publishing; 12 issues per year	
Money flow	charge, rent, income	€ 3,000 p.a.	

TABLE 1 Summary of the TCD conventions (Mk.I)

4 Case example

Let us consider an example from research publications, as in Figure 2.

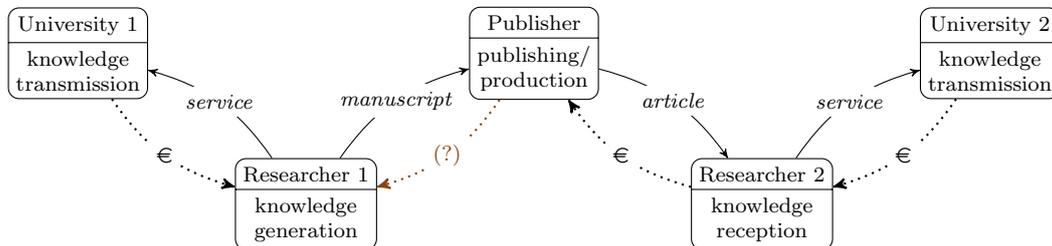


FIGURE 2 Transaction chain diagram (TCD) of ‘sharing’ research work through the publishing system

The argument presented graphically in Figure 2 highlights the following points:

1. The knowledge generated by Researcher 1 is expected to be transmitted ‘first hand’ at University 1, but ‘second hand’ at University 2 — with the implication that it is always desirable to do ‘first hand’ research locally in any subject deemed important.
2. Researcher 1 receives no *money* in return for having one or more articles published — hence the question mark: why is this so? what does the author receive in exchange (e.g. access to other articles for a limited time)?
3. If the money flows were to be quantitative, we could be asking: Where is the ‘hard cash’? How much does a research article cost to the author? How much to the publisher? How do universities convert their service to cash?

5 Discussion

The ‘node–flow’ TCDs are a variation of the [Odum and Odum \(2000\)](#) diagrams, in which the original ‘exchange’ symbol was used in conjunction with a variety of other symbols; overall, these diagrams required very good memory. In contrast, TCDs are very simple in form and structure, with much less conventions to remember ([Table 1](#)).

In the same way as other process diagrams ([Perdicoulis, 2010, 2011](#)), transaction chain diagrams help visualise arguments that contain step-by-step action. Hence, these arguments can be shared with little or no ambiguity, discussed, and acted upon if necessary. The great debates are expected to appear not during the construction of the TCDs, but in their enquiry and explanation — i.e. asking and answering questions — and in the ensuing negotiations — i.e. what is to be done, after all?

6 Conclusion

The new transaction chain diagrams (TCD) facilitate the visualisation and understanding of combined flows of money and products or services, so that these flows can be traced, examined, debated, negotiated, and adjusted as deemed necessary in each case.

References

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