

Adding sense to SIPOC

The process improvement tool SIPOC has been around since the 1980s. In its basic form, the model offers a result and customer oriented view to processes. In the basic set-up of the tool, three important pieces of information are missing though. First, the responsibility for the process. Secondly the purpose served with the customer, that is the outcome, and, last but not least, the final goal of the business process, in other words the impact. I call this the sense of the process. About time to add some (more) sense to the SIPOC diagram, right?

This article shows how SIPOC can be easily adapted to incorporate outcome and impact of the application of the results delivered by processes. Given that especially in knowledge driven, professional business processes, the main origin of quality issues lies in the interfaces between the constituent processes, and not in the processes themselves¹, this adaptation greatly enhances the insights gained from and so the effectivity of the SIPOC diagram.

What is SIPOC?

The SIPOC diagram is said to originate in the late 1980s as a total quality management tool, and, much later, as a tool in the Six Sigma approach to continuous process improvement. SIPOC is used during the DMAIC improvement cycle's Definition phase. So, in case you're not familiar with SIPOC, what is SIPOC?

SIPOC diagrams are used for analysing and improving processes. They 'box' processes between Suppliers and Inputs on the one side, and Outputs and Customers on the other side. In doing so, they clarify the value added between input and output, in another word the responsibility to be assigned (Figure 1).



Figure 1

Once the process is clearly defined in a SIPOC-diagram, the strong points and the room for improvement may be identified. This is often done in a brown paper session, using sticky notes (Figure 2).

¹ Prof. Ir. H.R. Vorstman (1990) *Productmarkt beleid en kwaliteit*



Quality with strategy

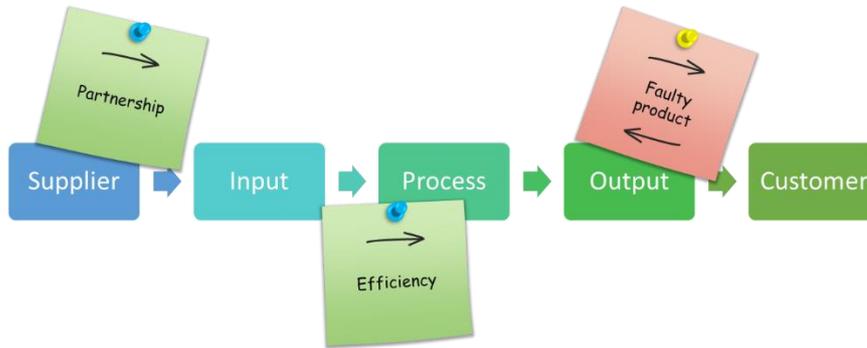


Figure 2

SIPOC diagrams for processes may be summarized in a table (Table).

Supplier	Input	Process	Output	Customer
Patron	Order	Noting order	Processed order	Kitchen
Waiter	Processed order	Meal preparation	Meal	Waiter
Kitchen	Meal	Serving	Served meal	Patron
Waiter	Served meal	Eating	Signal to pay	Waiter
Patron	Signal to pay	Cashing	Money in the till	Owner

Table 1

The flow of the business process is implicitly present. In Table 2 the flow is visualized:

Supplier	Input	Process + responsible entity	Output	Customer
Patron	Order	Noting order	Processed order	Kitchen
Waiter	Processed order	Meal preparation	Meal	Waiter
Kitchen	Meal	Serving	Served meal	Patron
Waiter	Served meal	Eating and enjoying	Signal to pay	Waiter
Patron	Signal to pay	Cashing	Money in the till	Owner

Table 2



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SIPOC missed opportunities

So far, so good. Now, what might be noticed. Surprisingly, the entity responsible for the process is not documented in this way of describing processes, whereas you might conclude that they are the primary target group for whatever insights the SIPOC might produce.

The English language speaks of responsibility and of accountability. Responsibility describes the responsibility to produce an agreed output, accountability describes the responsibility to address the need that is served by the output. Accountability, in this way, specifies the ownership of the business case for the development or production of an output, the Why and the What for of the process.

As for the question ‘What for’, it may be answered at two levels. The first level, the level of short term outcome, means enabling the direct users to put the output to good use, that is to secure the outcome. The second level, through the chain of processes and intermediate outcomes, is to fulfil the needs of the final beneficiaries, customers, citizens, society, and it’s called long term outcome or the impact². For example, a new application for an IT-system would allow speedier fulfilment of customer requests, being the outcome, resulting in higher customer satisfaction and retention, being the impact.

When the SIPOC diagram is discussed in its one-line form (Figure 1 and Figure 2), outcome and impact do not enter into the discussion. To me this feels a bit like using the ISO9001:1994 in 2024! Or as if getting stuck at no more than the third quality management ambition level, conforming to specifications (Table 3).

Quality definitions
1. Staying out of trouble
2. Following the procedure
3. Conforming to specifications
4. Meeting needs and expectations
5. Exceeding expectations (Delighting the customer)
6. Meeting the expectations of all stakeholders
7. Managing people, planet, profit with future generations in mind

Table 3

² Weiss (1995) *Theory of Change*



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Adding more sense to SIPOC

How do I propose to improve this situation. As a first, simple addition to the SIPOC, let's make the responsibility for the process - to produce an output that conforms to the requirements agreed with the customer - explicit (Figure 3).



Figure 3

Now, if we add the responsibilities for the constituent processes, the consecutive steps in a business process, in the SIPOC diagrams, we see which interfaces – hand-overs between responsibilities – exist in the overall process flow (**Fout! Verwijzingsbron niet gevonden.**).

Supplier	Input	Process + responsible entity	Output	Customer
Patron	Order	Noting order, waiter	Processed order	Kitchen
Waiter	Processed order	Meal preparation, kitchen	Meal	Waiter
Kitchen	Meal	Serving, waiter	Served meal	Patron
Waiter	Served meal	Eating and enjoying, patron	Signal to pay	Waiter
Patron	Signal to pay	Cashing, waiter	Money in the till	Owner

Table 4

Quality is lost – or unnecessary quality added - in translation. As noted before, especially in knowledge driven, professional business processes, the main origin of quality issues lies in the interfaces between the constituent processes, and not in the processes themselves³. The losses are primarily due to inadequate distribution of responsibilities, and then communication and cooperation on the interfaces between the responsibilities (**Fout! Verwijzingsbron niet gevonden.**).

³ Prof. Ir. H.R. Vorstman (1990) *Productmarkt beleid en kwaliteit*



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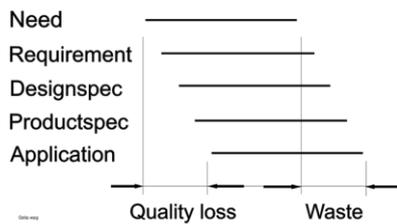


Figure 4

In the processes themselves, the professionals know very well how to do their bit, the question is, does their bit properly fulfil the needs of their direct customers? Properly also meaning not to over-deliver, so wasting quality and the money and time invested in that quality.

For the professionals in a business process to know whether they are delivering the right quality to their direct customers, they have to discuss the outcome with those customers. Upfront, of course, and at regular intervals during and after delivery.

What that outcome is, may be found in the SIPOC of those customers, in other words, the next line in the SIPOC-table (Figure 5).

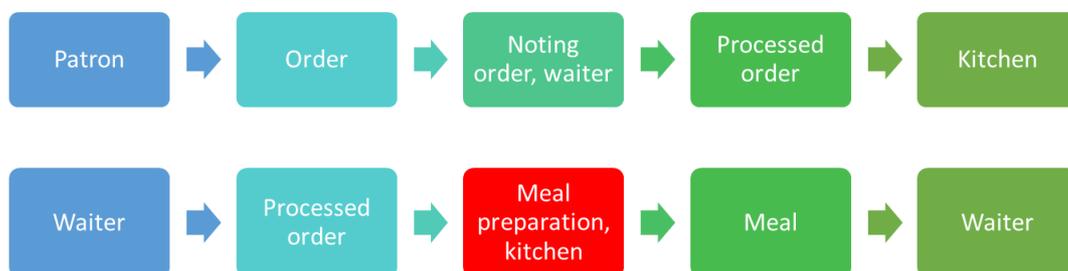


Figure 5

What then would be easier than to make a note of that outcome in your own SIPOC-diagram, as a constant reminder of the need your output fulfils? So turning the SIPOC-diagram into a SIPOCO-diagram? (Figure 6)



Figure 6



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Then the impact. In the case at hand, the order-noting results in two impacts for two, different stakeholders. In our quality management context, first and foremost is that the patron is satisfied with their meal. Secondly, of course, the restaurant will want to make a profit. Two subprocesses are instrumental, to visualize (Figure 7):

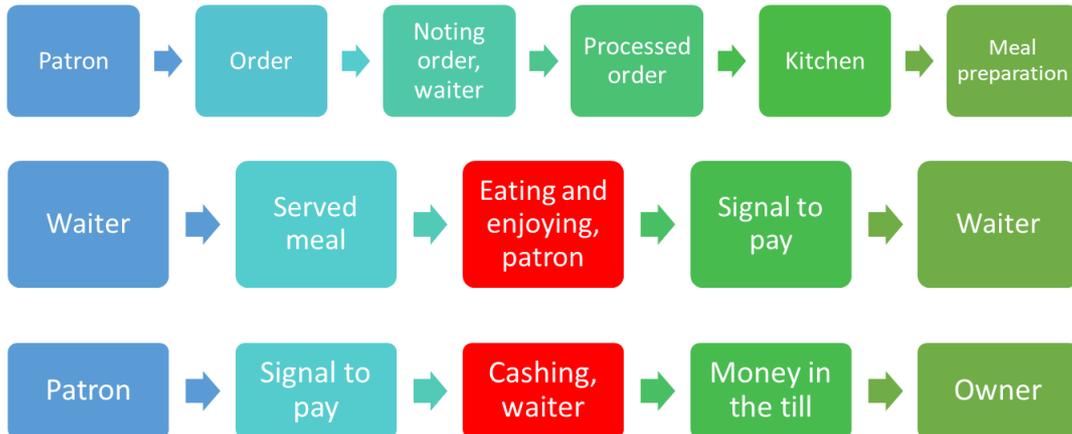


Figure 7

So, this is what the final result looks like (Figure 8).

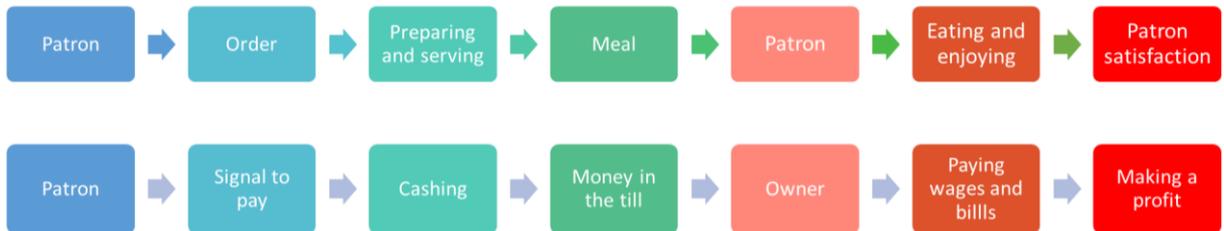


Figure 8

In a general sense (Figure 9).



Figure 9

Do note that the overall accountability for the business process – the consecutive processes in the SIPOC- or, better, the SIPOCOI-table - is the accountability for the impact. One might expect that accountability to belong to the business process owner. It would be good to add this accountability to the header of the SIPOC table (Table 5).



Quality with strategy

Business process owner: owner restaurant						
Supplier	Input	Process + responsible entity	Output	Customer	Outcome	Impact
Patron	Order	Noting order, waiter	Processed order	Kitchen	Meal preparation	
Waiter	Processed order	Meal preparation, kitchen	Meal	Waiter	Serving	
Kitchen	Meal	Serving, waiter	Served meal	Patron	Eating and enjoying	Patron satisfaction
Waiter	Served meal	Eating and enjoying, patron	Signal to pay	Waiter	Cashing	
Patron	Signal to pay	Cashing, waiter	Money in the till	Owner	Paying wages and bills	Making a profit

Table 5

Conclusion

In this article SIPOC has been extended to SIPOCOI, more sense has been added to it. SIPOCOI will allow responsible people to ‘begin with the end in mind’⁴ and so continually reflect on whether their result (still) meets its short term and long term purpose. Whether it produces outcome and has impact.

The SIPOCOI inventory will best be done with all parties concerned, ensuring everyone’s understanding of their position in the bigger picture of processes, whether they be primary, supporting or governing. This in turn, might lead to a more critical position towards standardized requirements and procedures, the identification and use of more effective indicators, and more regular evaluation. It might lead to a better design of consultation practices on the interfaces. And it will definitely lead to an increased feeling of purpose for the responsible people concerned.

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⁴ Stephen R. Covey (1989) *The 7 Habits of Highly Effective People*