One more time: how do you win orders?: a critical reappraisal of the Hill manufacturing strategy framework

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Introduction

The manufacturing strategy framework developed by Hill[1] and, in particular, the associated concept of order-winning and order-qualifying criteria, have been widely adopted in UK literature (e.g. [2-5]) and have informed UK government publications on manufacturing strategy practice[6] (see also[7]). In the US literature, Hill’s work is seen as less central to the discipline, although it is cited in some work[8,9].

The purpose of this paper is to examine the Hill[1] framework and its development closely, comparing it to work in manufacturing strategy and a number of other, related fields. In particular, Hill’s distinctive concepts of order-winning criteria (OWC) and order-qualifying criteria (OQC) will be discussed. Although the emphasis is on the Hill framework, the discussion raises some issues relating to manufacturing strategy more generally. The article is intended as a discussion and development of theory and, as such, does not contain empirical evidence.

The approach adopted is to make a number of comparisons within the literature, as summarized in Figure 1. The basic questions addressed are:

(1) What are the distinctive features of Hill’s approach?

(2) Is the order winner/order qualifier really different from the competitive criteria or competitive priority concept often adopted in the manufacturing strategy literature, and how do they compare to related marketing concepts?

(3) Is the distinction between order winners and order qualifiers one that is either well founded or useful in strategy formulation?

(4) Do developments in the strategy literature – notably the core competence view – make the basis of much of the manufacturing strategy literature, including Hill’s[1] approach, obsolete?
To answer these questions, considerable use will be made of Hill’s [1] own work.
Also, bearing in mind the strong links with marketing and competitive strategy, literatures from these areas will also be drawn on.

Manufacturing strategy: competitive criteria and the trade-off
The original big idea of manufacturing strategy was the trade-off [10]. Having taken the first step of giving a strategic rather than purely tactical role to the manufacturing function, the important decision was to identify the manufacturing task [10] or, as it has been reinvented and refined, competitive priorities or competitive criteria [8,9]. The basic argument of Skinner [10] and his successors is that a manufacturing system cannot be good at everything and so managers must decide which one or two performance objectives they want to be good at - the rest will have to suffer. As they have now found their way into US manufacturing and operations strategy textbooks, the criteria are cost, quality, delivery, flexibility [11-13]. Variations on this include the separation of delivery dependability from delivery speed and the addition of innovation, e.g. [14]. The competitive priorities can be defined as follows [14,15]:

- Cost. Production and distribution of product at low cost.
- Quality. Manufacture of products with high quality or performance standards.
- Delivery dependability. Meet delivery schedules or promises.
- Delivery speed. React quickly to customer orders.
- Flexibility. React to changes in product, changes in product mix, modifications to designs, fluctuations in materials, changes in sequence or routing of manufacture.
- Innovativeness. Introduction of new products and processes.

The competitive criteria have come to be seen as part of the content of manufacturing strategy, along with the decision areas. Leong et al. [14] summarize this in their “predominant” model of manufacturing strategy.
content (see Figure 2). There have been many attempts to categorize the decision areas. Skinner[10] identified the following:

- plant and equipment;
- production planning and control;
- labour and staffing;
- product design/engineering;
- organization and management.

Other writers have proposed alternative taxonomies[7,16-18]. All have followed Skinner's[10] lead in distinguishing between structural and infrastructural areas. The trade-off principle implies, then, that as decisions are made in the various decision areas they inevitably bring with them trade-offs between the competitive criteria (which, furthermore, is implicit in the alternative term competitive "priorities"). Indeed, the table of decision areas in Skinner's original article[10] was headed: “Some important trade-off decisions in manufacturing – or 'you can't have it both ways'”.

The trade-off principle is now subject to debate and revision[4,19-21]. For example, Skinner[10] was happy enough to trade off cost against quality: assuming he meant (or at least included) conformance quality[22], there is a good deal of evidence that these objectives, far from being mutually exclusive, can be mutually reinforcing, i.e. improving conformance quality can reduce costs (e.g. [23]). Similar debates are under way regarding other pairings of criteria, e.g. cost and product flexibility[24,25].

A similar debate is taking place in the competitive strategy literature. Porter[26] is best known for his "generic strategies" concept. Voss[27] suggests that Porter stole the idea from the early manufacturing strategy work; some manufacturing strategy theorists[12,13] use Porter as the starting-point for developing the competitive criteria approach. Either way, the conceptual parallels are strong. Porter[26] warns against being “stuck in the middle” and recommends

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Figure 2. Manufacturing strategy content model
adopting a competitive position based on either low cost or differentiation or focus (although there are some doubts as to whether Porter's scheme is intended as prescriptive or merely taxonomical[28]). This is very close to the manufacturing trade-off argument. However, the parallels between the literatures also extend to the questioning, in both cases, of the inevitability of the trade-off principle. There is evidence that both low cost and differentiation are possible and, furthermore, that being stuck in the middle can be very successful[28]. Nonetheless, although the relationship between them is under intense review, competitive priorities or competitive criteria are still widely adopted.

Often treated as a separate area of study is the manufacturing strategy process[13,14,29-31]. This bifurcation has been adopted from the business strategy literature and the debate that has developed so far is along similar lines. Skinner's[10] original model was very much of the top-down, planning school with, for example, Ansoff[31] as a parallel in the business strategy literature. The possibility of a planning approach has also been accepted by other writers[1,7,17]. Hayes and Wheelwright[16,32] have seen the process much more as a bottom-up, emergent one. This view also has a parallel in the business strategy literature[33,34].

More recently, a much more dynamic view of manufacturing strategy has been adopted, particularly in relation to the trade-off, but also with regard to the strategy process. In particular, the issue is seen less as choosing which criteria are important in what is a relatively static world, and more of choosing which trade-offs to eliminate or change in a dynamic world[35].

**The Hill framework: an outline**

Hill adopts many ideas from earlier work, particularly Skinner's[10,36]. A planning approach to strategy formulation is given centre stage, with manufacturing involved at the highest level; the trade-off principle is incorporated; the structure/infrastructure split in the strategy content decision areas[37] is also a significant feature.

The framework is shown in Table I. The outline of the strategy process is given by Hill[1] as:

Step 1 Define corporate objectives
Step 2 Define marketing strategies to meet these objectives
Step 3 Assess how different products win orders against competitors
Step 4 Establish the most appropriate mode to manufacture these sets of products - process choice
Step 5 Provide the manufacturing infrastructure required to support production.

Hill is quick to emphasize that the steps are not neatly sequential stages, but that there is considerable iteration between steps[1]:

This is also communicated by the use of circulating arrows superimposed on the diagram to indicate iteration.

As well as the aspects of the Hill[1] framework that are derived from previous manufacturing strategy work, there are also some distinctive features.
First, there is an unusual emphasis on the marketing-manufacturing link. Many other models see manufacturing strategy as the strategy of just one of several functions – marketing, finance, technology, human resource management – that follow from the corporate and competitive strategies of the business. While they contain discussions of the degree of fit between functional strategies and between them and the competitive strategy, no other model treats the marketing-manufacturing link as so central.

Second, although Hill’s[1] process is first and foremost a planning one, it does admit of a good deal of debate and iteration, particularly between marketing and manufacturing. In this way, it offers some prospect of manufacturing behaving in the proactive mould of the “Stage IV” company[16]. This is less consistently articulated in most other models.

Third, the strategy formulation process defined is very detailed in that it considers individual products. This aspect in particular has been emphasized elsewhere[7] and is discussed at some length below.

Fourth, finally, and probably most notably, Hill[1] introduces the concept of order-winning and order-qualifying criteria. These are broadly equivalent to the competitive priorities or criteria adopted elsewhere (e.g. [14]) but are given a different emphasis and edge by being so closely related to marketing. Also, the distinction between their order-winning and order-qualifying roles was not found elsewhere in the manufacturing strategy literature prior to Hill’s[1] work.

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Table I.
Hill’s manufacturing strategy framework

Note: Although the steps to be followed are given as finite points in a stated procedure, in reality the process will involve statement and restatement, for several of these aspects will impinge on each other.

Source[1]
In this section it will be argued that the Hill[1] framework’s order-winning criteria are different from the competitive criteria adopted in much other manufacturing strategy literature. While this was always the case, it will be argued that the difference has become more marked as the concept has been reinterpreted and implemented. Further, it will be argued that there is a good deal of evidence from related literatures that this is a development fraught with difficulties and dangers.

First, it is necessary to examine the evidence for the supposed difference between the two concepts. In doing this, Hill’s[1] own work will be drawn on. Second, having established that the order winner concept as it has evolved is distinctive by its closeness to marketing theory, it will be compared with notable buyer-behaviour theory. Third, certain implications of the concept’s distinctive grounding in detailed transaction data will be briefly examined.

Are order winners different from competitive criteria?

Ten years after the order winner concept first appeared[38], Hill[39] has recently made his strongest statement yet on the distinctively close link order winners have with marketing theory: “In marketing terms, the order winners represent a way of describing buyer behaviour”. Previously, order winners had been “market-oriented questions requiring manufacturing answers”[1]. Now Hill[39] is making explicit the previously implicit closeness to the concepts of marketing buyer-behaviour theory. Others have interpreted the order winner concept as a “real alternative emphasis”[8] to the competitive criteria found in US-based manufacturing strategy literature.

In understanding the evolution of the concept, it is informative to refer to Hill’s[40] own account. As presented there, it was introduced during the empirical work that led to the framework as a useful way of making concrete the abstract idea of competitive priority for the purposes of interviewing marketing personnel. An earlier version of the model used “performance criteria to compete”[41]. However, in the detailed implementation of the process as described, i.e. with reference to individual products and orders, the change does represent something more than convenience of terminology. Hill’s conceptual move from a broad notion of competitive priorities to one which involves looking at how individual orders in the past were won or lost could be characterized as moving from the first to the last of these three possible questions:

1. How do we compete?
2. How do we win (qualify for) orders?
3. How did we win (qualify for) those orders?

This involves at least two important changes. First, there is a move into marketing territory, an encroachment on the zone of decision making and performance mediated by a function other than manufacturing. Second, there is a move from the general to the specific in a process rather similar to market
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 Accordingly it must be shown that what is gained in explanatory power by these differences outweighs the risks that come with adopting a more complex construct. If, on the other hand, the “order winner” phrase was simply a methodological device to facilitate interviewing then, once it has served its purpose, we would be better to revert to “competitive criteria” and avoid the “unnecessary semantic differences” that obstruct progress[8].

Order winners: buyer behaviour implications

If the Hill framework or, indeed, manufacturing strategy theory more generally is to take in some marketing issues, it is important to understand more about the literature in relevant areas such as buyer behaviour. Much of Hill’s[40] fieldwork was carried out in firms serving business markets. The review of buyer behaviour will thus be confined to the business marketing literature, concentrating first on the US-based traditional school and then on the European interaction school. The discussion will first examine the criteria used in the buyer behaviour literature, then consider alternative views of their role in the buying process.

The decision criteria used in the business marketing literature vary. Price, quality and service are consistently used, with delivery being separated from service in some cases and included within it in others. Table II summarizes some of the work, in comparison with the consensus view of manufacturing strategy criteria and Hill’s own range of order winners.

There is considerable agreement, particularly on price, quality and delivery. The delivery criterion does not always include a reliability as well as a speed component. Although the consistency of terminology and the generic nature begins to break down, Hill’s other order winners (aside from price, quality and delivery) can be understood as forms of flexibility, innovation and quality. This leaves “technical support” as outside the criteria usually adopted in the manufacturing strategy literature. It is notable that the strongest agreement between marketing and manufacturing literatures is over the criteria deemed “rational” by Hutt and Speh[43].

The business marketing literature referred to here concentrates on the vendor selection decision. There is more to purchasing than this, of course. Robinson, Faris and Wind[45] proposed an eight-stage buying process model which defined the steps in an individual purchase decision. They combined this with a measure of the newness of the purchasing situation – whether it was a straight rebuy (of something that had been purchased before), a completely new task or somewhere in between – and established the widely adopted “Buygrid” model. Subsequent studies[46,47] confirm that the Buygrid model is representative of some purchasing decisions.

All the buyer behaviour literature discussed so far is concerned above all with designing a marketing mix for basically passive buyers, who will respond by either buying or not buying. It also strongly emphasizes the stages involved in a discrete purchase[48], so much so that the two recent studies mentioned[46,47] both have implicit in their design a view that the useful unit of
Table II: Decision criteria in the manufacturing and business marketing literature

<table>
<thead>
<tr>
<th>Manufacturing strategy</th>
<th>Business marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Price</td>
</tr>
<tr>
<td>Quality</td>
<td>Quality</td>
</tr>
<tr>
<td>Delivery: speed</td>
<td>Delivery: speed</td>
</tr>
<tr>
<td>Delivery: reliability</td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>Demanding increases</td>
</tr>
<tr>
<td>Innovation</td>
<td>Colour range</td>
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<tr>
<td></td>
<td>Product range</td>
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<tr>
<td></td>
<td>Design leadership</td>
</tr>
<tr>
<td></td>
<td>Technical support</td>
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</tbody>
</table>

Note: Lehmann and O'Shaughnessy[42] summarize their criteria as follows: Performance – how well will the product do the job? Economic – what are the various cost outlays in buying and utilizing the product? Integrative – is the supplier customer oriented and committed to meeting/exceeding the buyer’s expectations?, how certain is the buyer that the supplier can produce and deliver to specification? Legalistic – what legal/policy constraints must be borne in mind when buying this product?
analysis is the individual purchase decision. There is, however, a growing body of evidence that buying behaviour is more usefully considered not in terms of isolated decisions made by passive buyers, but as part of a relationship. The interaction approach has both seller and buyer active in the relationship, and sees any particular “decision” as influenced by, and influencing of, the relationship between the organizations. “The marketer’s and buyer’s task in this case may have more to do with maintaining these relationships than with making a straightforward sale or purchase.” [48].

On the interaction view, a relationship consists of a series of episodes over time. There are four types of episode – product/service, financial, information and social [48]. These might be seen as a stream of events, as in Figure 3, where each asterisk represents an episode.

How each episode is handled depends on aspects of the episode itself – how complex it is for example – but will also depend on the history of the relationship [49]. By implication, it will also depend on what the expectations are of future episodes. Episodes can strengthen or weaken a relationship, particularly in the way they affect the degree of trust between parties. As business transactions are carried out in an atmosphere of greater or lesser uncertainty, of one sort or another [49-51], the level of trust is important in determining how episodes are handled in that a high level of trust can greatly mitigate potentially problematic uncertainty. Trust is seen as an important factor in determining the power of any firm in a relationship or, indeed, in a supply network. It is based on “reputation and, more importantly, on past performance” [52].

A related concept is the mutuality of a relationship. Mutuality is:

- a measure of how much a company is prepared to give up its own individual goals or intentions in order to increase the positive outcomes of others and, through this, increase its own ultimate wellbeing [53].

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Figure 3.
A graphical representation of episodes in a buyer-supplier relationship.
As these authors note, though, “mutuality costs nothing to show at the spoken level ... However, mutuality can only really be demonstrated over time”. Mutuality is seen as the “mirror of the trust which exists between parties”[53].

While these “softer” aspects of buyer behaviour are not completely lost on the traditional business marketing literature, there are tendencies to relegate them to secondary considerations (e.g. [43]) and to separate them from the “rational” criteria such as price and delivery. As Thorelli[52] suggests, however, trust (for example) is to a great extent founded on past performance on such quantifiable criteria as delivery and quality. Likewise, “perceived risk” in Hutt and Speh’s[43] “emotional” criteria will be strongly influenced by past performance on the “rational” criteria.

The reliable delivery to a customer of one product on one occasion, if the interaction view is accepted, will not only satisfy them on that occasion, in respect of that product, but will also modify the relationship. Such an episode might improve trust and reduce the perceived risk involved in placing future orders. When the time comes to place those future orders, for the same or other products, decision making will be based in part on trust and perceived risk and will hence be influenced by previous manufacturing performance. This may outweigh the immediate “rational” criteria (e.g. the “black-box” design approach advocated as part of a lean supply relationship[23]). Hill’s approach invites the abstraction of the criteria from the potentially very important context of the relationship. The implicit assumption is that current performance specific to the product to be purchased is all that matters, hence ignoring the transfer of experience on the part of the purchaser both over time and between products. This is related to the following section.

Order winners: segmentation and generalization
In the detailed strategy-formulation process advocated by Hill[1], order-winning and order-qualifying criteria for individual products considered to be representative of particular product-market segments are allocated relative importance in terms of weightings out of a total of 100. Importantly, this is to be done based on past production and sales data giving, for example, volumes and lead times requested by individual customers for individual orders. (Again, this is adopted in the process described by Platts and Gregory[7].) This contrasts with the competitive criteria approach, which does not descend into the detailed consideration of individual products, individual orders and individual customers. In this literature, manufacturing strategies are usually determined at strategic business unit level (e.g. [14]).

Many of the competitive criteria approaches are very sketchy about the process by which the criteria are determined. Indeed, a dissatisfaction with the general nature of much of the writing in strategic management is at the heart of Hill’s approach, for example in this thinly veiled swipe at Michael Porter[1]: “researchers, writers and advisors have proffered generic statements concerning corporate strategy formulation with expressions such as ‘low cost’, ‘differentiation’ and ‘critical success factors’”.

While this may be a valid criticism, it does not necessarily follow that Hill’s approach, particularly in the way it has become operationalized, is any better. The step of generalizing about product groups based on the criteria that are supposed to have won individual orders from individual customers for individual, “representative” products is rather similar to the marketing procedure of market segmentation. A number of criticisms can be levelled at this approach, and these apply just as well to Hill’s approach.

The process of generalizing from many different individual cases to “manageable” segments arguably involves a number of heroic assumptions, even in supposedly more homogeneous consumer markets[54]. Attitudes of potential customers are often equated with purchase behaviour; differences between customers are seen as much more important than changes in behaviour of the same customers over time; and the groupings of customers according to their supposedly consistent differences correlate with some socio-demographic descriptors[54]. Thus, based on a socioeconomic classification and market research data on attitudes, it is supposedly possible to “read off” the appropriate marketing mix.

Perhaps with this aspect of the Hill approach more than the others discussed here, there is a need to beware of the original intentions for the use of the framework:

conscious even at the early stages of the research that explaining the approach and issues involved was of prime importance, a framework was developed to reflect this linkage and to offer a diagrammatic explanation of the steps involved ... frameworks and methodologies are an essential prerequisite in the explanation to others and in the understanding by oneself[40].

The development of the framework from its original function as an explanatory tool into a highly prescriptive and detailed technique is very reminiscent of the evolution of the Boston Consulting Group Growth-Share matrix[55]. This evolved, by becoming more detailed, prescriptive and assumption-laden, from “purely a presentational device” to “the much used (abused?) device so commonly found in marketing and strategy textbooks” [56].

In summary then, in so far as Hill’s order winner concept is derived from historical data on actual sales, it runs a number of risks. It is based on a view of buyer behaviour that is centred on the discrete-event purchase decision which, as the literature on business marketing indicates, is being strongly challenged by the interaction/network view. Abstracting data on “typical” purchase decisions from the context of the supplier-customer relationship in which they took place is highly dangerous. As well as this risk, the process of generalizing from individual sales to “manageable” segments involves other assumptions that are increasingly seen as very dubious, even in the consumer marketing literature, let alone in business marketing, where customers are seen as less homogeneous. Hence the moves both closer to marketing and closer to the atomistic detail of individual sales that Hill advocates may be not only unhelpful, but positively dangerous when used as a basis for decision making.

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Order winners versus order qualifiers

Putting aside, for the time being, concerns about the distinction between order winners and competitive criteria, the discussion will now turn to the distinction between order winners and order qualifiers. This distinction finds a number of more or less close parallels in a variety of management disciplines. These are summarized in Table III.

From this it is apparent that, in a number of fields, this type of distinction is an attractive one. All these concepts have in common the supposition that some factors affect customers’ (and, in the case of Herzberg[58], employees’) behaviour in a qualitatively different way. In all these theories and models, attainment of a “satisfactory” level in the OQ-equivalents is all that is needed – performance over the satisfactory level will not markedly affect response. However, performance below some threshold will be damaging to response. The higher the level of performance on the OW-equivalents, on the other hand, the better the response – customers are more motivated to buy, employees are more motivated to work. One possible representation of this is proposed by Varadarajan[58] and adapted in Figure 4.

While there are strong parallels between these theories and models, it is from the differences between them that we may expect to derive fresh insights. Here,

<table>
<thead>
<tr>
<th>Field/reference</th>
<th>Managerial implications/ comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing strategy: Hill[1]</td>
<td>Identify those manufacturing can affect and give OQ priority. Clear distinction of followed through to prescription. No limit on candidates. Distinction defines target for performance measurement and prioritizes improvements. Some distinction in prescription but still only ranking for improvement. A manufacturing mix will help in delivering competitive-edge factors. Distinction is made in identification but not in prescription. (Continued)</td>
</tr>
<tr>
<td>Manufacturing strategy: Slack[4]</td>
<td>Yes, O-W in one case (e.g. price) may be irrelevant in others.</td>
</tr>
</tbody>
</table>

Table III.
Parallels to the OW-OQ idea
"One more time: how do you win orders?"

A number of comparisons will be made: of the evidence for the distinction between OW and OQ; of the factors included in each instance; of the degree to which the role of a particular factor – OW or OQ – is fixed or depends on circumstances; and, finally, of the managerial implications of making the distinction.

<table>
<thead>
<tr>
<th>Field/reference</th>
<th>Order winners - order qualifiers</th>
<th>Contingent?</th>
<th>Managerial implications/ comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing strategy: Meredith, et al.[57]</td>
<td>Critical or primary/ supporting</td>
<td>No. Claims that some, e.g. delivery reliability, are always supporting, others always primary, e.g. responsiveness</td>
<td>Primary are bases for deciding where to “redirect attention”. Conclusion is that “value” is function only of primary criteria.</td>
</tr>
<tr>
<td>Motivation: Herzberg[58]</td>
<td>Motivating/ Hygiene factors</td>
<td>No. Some factors (e.g. pay) always hygiene, others always motivating</td>
<td>Managers must provide both. Case made for job enrichment. Widely replicated</td>
</tr>
<tr>
<td>Other fields Competitive strategy: Varadarajan[59]</td>
<td>Success producer/ failure preventer</td>
<td>No. Some seen as always failure preventers, others as success producers</td>
<td>Disagrees with Meredith et al.[57] as to which. Basis for allocating resources dependent on relative position on variables. Admittedly tentative. Seems tautological; warns of interactive effects as well (see Meredith et al.[57]).</td>
</tr>
<tr>
<td>Service quality: various, e.g. Parasuraman et al.[60]</td>
<td>Satisfier/dissatisfier</td>
<td>Not clear. Dimensions “transcend service types”</td>
<td>Apparently intended to direct quality improvement priorities and as a basis for segmentation.</td>
</tr>
<tr>
<td>Service quality: Silvestro and Johnston[61]</td>
<td>Enhancing/hygiene factors</td>
<td>No, but some factors can be of both types.</td>
<td>Provides basis for evaluating performance not based solely on complaints. Distinction used as basis for devising performance measurement. Unlimited number of factors, i.e. no trade-off in evidence.</td>
</tr>
</tbody>
</table>

Table III.
Evidence

In motivation theory, the grounds for distinguishing between hygiene and motivating factors are well documented[59]. In service-quality and consumer marketing, there is empirical evidence of the extent to which this is a useful insight[61]. Despite widespread adoption of the order winner/order qualifier distinction in the UK, there is little empirical evidence to show that it is a well-founded distinction. The more detailed account of the development of the model[40] does not show how the need to make a distinction became evident, simply commenting in relation to the “performance criteria to compete” of the original form of the framework that: “marketing will be required to differentiate between what is preferred and what is required” [40], and then that: “Applications of the framework brought a recognition of the need to distinguish between performance criteria both in terms of their different roles [i.e. winning or qualifying] and levels of importance”[40] (bracketed comment added).

In implementation, however, as has been noted, the different roles are simply reflected as very different levels of importance.

The factors

In many of the theories and models, the factors are outcomes of or outputs from the organizational process being considered – price, quality, salary, etc. In others, they are aspects of the organizational process itself – “responsiveness” or company policy. This parallels the separation, in the manufacturing strategy literature, of competitive criteria from decision areas.

It is also useful to examine the extent to which the factors included on the list are controlled or limited. In the manufacturing strategy models, they are mostly limited to price, quality, delivery and flexibility. (It should be noted that, in Hill’s case, flexibility as such is not included and, in some of the field work, other factors are included as deemed appropriate, e.g. “customer relations” in one case and “product performance” as well as “quality” in another[40]). In models from
other fields, the list is much longer, e.g. Silvestro and Johnston[61] have 17 service-quality factors.

In manufacturing strategy, the original reason for defining competitive criteria was, in large part, so that one or two could be chosen as priorities in the trade-off decision. There seems to be no explicit notion of the trade-off in the other models in Table III. The willingness in some manufacturing strategy work to add factors in an ad hoc way[9,40,62] is also important. If the list making is to be a brainstorming exercise for the purposes of identifying variables for performance measurement, all well and good. If, on the other hand, it is to be a basis for making trade-offs and allocating scarce resources between what are seen as conflicting aims, then it is essential to be clear about what conflicts do exist between the factors and hence which are to be included, particularly in view of the critique of the trade-off summarized above.

Contingency

Another issue, albeit one that cannot be divorced entirely from the previous one, is whether the role - OW or OQ - of individual factors varies from case to case. Most of the manufacturing strategy models propose that a factor can be an OW in one case, an OQ in a second and of only minor significance in a third. Meredith et al.[57] suggest that delivery reliability, “product appeal”, etc. are always supporting (OQ) factors and that quality, delivery speed and customization are always primary (OW) factors, although this is not supported by any empirical evidence and seems an absurdly sweeping generalization.) Herzberg[58] is famous for identifying factors that are always hygiene (OQ) factors; Silvestro and Johnston[61] attempt to do the same but admit partial defeat, invoking a third category of “dual-threshold” factors for those that appear to be both OW- and OQ-factors, although having done that, they suggest that the roles of factors are always the same, e.g. friendliness is always an enhancing factor, competence is always a hygiene factor.

Managerial implications

Perhaps of most interest is the “so what?” question. What are the managerial implications even if it is possible to identify some factors that are OWC and some that are OQC? This is where much of the work is disappointing. In his discussion of order winners and order qualifiers, Hill is not very specific about what the difference in management attitude should be towards order-winning criteria on the one hand and order-qualifying criteria on the other. Order-qualifying criteria should be met first[1] or assigned extra weight compared to order winners[63]. These appear to be somewhat vague prescriptions, bearing in mind the importance that has been attributed to distinguishing between the two types of criteria.

Slack[4] develops Hill’s ideas and distinguishes between order winners and order qualifiers on the grounds of performance measurement[4]. The target for order qualifiers is “industry standard” and, while it is essential that the standard is achieved, performance over the standard does not add much competitive
benefit. The target for order winners, on the other hand, is set more directly by individual competitors, and increasing performance beyond that of the best competition adds competitive benefit. This approach is used to determine what managers' attitude should be towards the various criteria – whether to improve, improve urgently or withdraw resources from a particular area.

Most of the conclusions in other work are similarly sketchy, often reverting to a ranking of the OQ above the OW in allocation of resources. This merely quantitative differentiation of managerial action is in stark contrast to the qualitative distinction to the establishment of which all these writers devote considerable energy. This cannot be helped by the fuzziness, noted earlier, with which factors are deemed to be candidates for inclusion. Herzberg's[58] is perhaps the clearest voice, arguing that, having established a distinction, management must attend to both hygiene and motivating factors if they are to have a productive workforce. The implication of the prescription elsewhere to rank factors is that the OQs must be attended to first, then, if there are any "resources" left, attention is given to the OW. But, just as a firm must qualify before it can win orders, what is the point in qualifying but never winning? Presumably the most important thing is not the taking part.

Finally, there are other indications that this two-level model of the competitive criteria is doubtful. In the consumer marketing literature, there is a view that before so-called tactical issues such as price and promotion come into play, products must "qualify" by being correctly positioned in the market. Positioning sets the strategic context in which tactical marketing-mix adjustments are made. Recent work based on detailed analysis of actual consumer purchasing behaviour[64] indicates that this attempt to attribute only a limited role to tactical criteria in determining purchase behaviour is flawed. This is of interest on two counts: first, regarding the form of the relationship between criteria and, second, regarding what the criteria are. First, it seems that, in this case at least, a hierarchical model is not predictive of behaviour and hence "that these so-called 'tactical' marketing-mix decisions are the very essence of practical strategy"[54], rather than being fine-tuning within the supposedly more powerful strategic positioning. From Cooper's[64] work it seems that a simple weighting approach would serve as well as any in determining relative priorities. Second, if, for example, price is seen as a powerful but nonetheless tactical issue in marketing, what does this mean for its supposed strategic role in competitive and manufacturing strategy? Possibly, different approaches to consumer markets are needed, but perhaps it is also wise to beware of attributing anything more than very crude predictive power to the criteria, whether they be "competitive" or "order winning".

In summary, then, closer examination of the distinction between OWC and OQC indicates that, although intuitively appealing, there is little empirical evidence that the factors function in the way they are supposed to. It also seems that the rationale for including factors as potential candidates for OW/OQ status is muddled in some of the literature and that, in the end, such a small distinction
is made between how to manage OW factors as opposed to OQ factors that we may wonder why we bothered making the distinction in the first place.

**The level of manufacturing strategy: products/markets versus competences**

Hill’s process works at the level of “product markets and segments”. The individual products whose order winners and qualifiers are to be determined from sales and production data are representative of these product groupings: the latter consist of “products which have closely related market targets [sic] and which often share a common marketing programme” [1].

There has been a tendency recently for the focus of corporate strategy analysis and formulation to move away from the management of portfolios of businesses and/or products and towards a primary or at least equal concern with competences. The former approach is characterized by the Boston Consulting Group[55] growth-share matrix and Ansoff’s[31] diversification matrix and is concerned primarily with markets and products. The more recent shift towards competences[65] has seen the product displaced as the primary concern of strategists:

> Products are but the momentary expression of a corporation's core competencies. Competencies are more stable and evolve more slowly than do products .... Product-market competition is merely the superficial expression of a deeper competition over competencies[66].

This begs a number of questions. If strategy is no longer first and foremost a matter of competing by means of products in markets, is the primacy of the marketing strategy-competitive strategy link so often assumed (as it is in Hill’s framework) still valid? And, as such, should the question of “How do products win orders in the marketplace?”[1] (emphasis added) be considered strategic?

This shift has been reflected in changes in some manufacturing strategy thinking. In 1978, Hayes and Schmenner[67] were using the product-focus and market-focus options as the answer to their self-administered question, “How should you organize manufacturing?”[67]. They followed the classic steps of deciding the competitive priorities (“In its simplest form this choice is between seeking high profit margins or high output volumes”) and then designing the facilities and infrastructure accordingly. Sixteen years later, Hayes[35] (along with another co-worker) puts forward a very different view:

> Manufacturing strategy can no longer confine itself to guiding short-term choices between competing priorities like cost, quality and flexibility. ...

... manufacturing strategy is not just about aligning operations to current competitive priorities but also selecting and creating the operating capabilities a company will need in the future.

This is resonant with the core competences view (“We use the terms ‘competence’ and ‘capability’ interchangeably”[68]): dynamic, enduring and not concerned with products and markets as the be-all and end-all of strategic analysis.

Although the competence literature is not yet well developed, it contains a number of concepts that challenge the traditional view of both competitive
strategy and manufacturing strategy. The product/market arena is not abandoned, but seen as merely the surface of the “multiple-layer game” that strategy has become, in which competition is not solely between product and product, but between alternative organizing logics; it is no longer about “choice and commitment to hard-to-reverse investments”, no longer about “optimisation within constraints” [the resource allocation/trade-off principle], but “a search for new ways to challenge traditional competitive logics”[69].

Much of the competence literature talks of “assets”, both tangible and intangible. Competences are not synonymous with or even necessary consequences of possessing these assets though. Competences act as “catalysts to asset accumulation”[70]. In turn, the assets can provide the more traditional cost and differentiation advantages[71]. Translating this to a manufacturing context, strategy no longer means selecting the “right” process technology and production planning system for the selected competitive criterion, but also involves developing the competences that enable quicker, cheaper asset accumulation (e.g. new product development or introduction of new processes) to occur.

In conclusion to this part of the discussion, then, the subtitle should not be product/market “versus” competence, but product/market “as well as” competence.

Discussion
To return to the questions posed at the start of this article, it is evident that Hill’s approach has a number of significant distinctive features. In some cases, it is contended, these distinctive features are the very source of some of the weaknesses of the approach. In the areas where Hill is consistent with the majority of the manufacturing strategy literature, he is subject to the same challenge as everyone else from the core competence view and those who question the trade-off principle.

Order-winning criteria are different from the competitive criteria used elsewhere in the manufacturing strategy literature and often, as it is argued here, problematically so. It seems that, over the years of evolution of the model, Hill has moved farther and farther into marketing territory without fully recognizing the cost of doing so. The risks associated with this have been heightened by the tendency to programmatize what started as a simple presentational device.

The distinction between order winners and order qualifiers finds parallels in other fields, but appears neither well founded nor, in the final analysis, particularly useful in informing decision making.

Finally, it seems that much of the manufacturing strategy literature is undermined to a greater or lesser extent by the demise of the trade-off and by the rise of the core competence view of strategy. Certainly, approaches such as Hill’s that so strongly emphasize the product/market dimensions offer only a limited view of what manufacturing strategy could be.
One more time … implications for academics
Hill has been extremely successful and persuasive in his reinterpretation and presentation of the concepts of Skinner[10,36,37] and of Hayes and Wheelwright[16]. However, the arguments presented here strongly support the view that, if the trade-off principle is to be adopted, then the concept of competitive criteria is more useful than order winners in discussing what a manufacturing strategy is about. This could be viewed as a relatively minor terminological point. But if the concept of order winners is taken literally and given excessive credibility by incorporation into detailed strategy formulation techniques that neglect relationship effects and marketing-mediated factors, then there are potential problems. The first major implication then, is that, having found the order winner concept particularly lacking in the relatively enduring relationships typical of many industrial marketing situations, operations strategy theorists must identify what the basis of a distinctive theory of manufacturing strategy that is relevant to such situations could be.

Despite the argument presented here, the order winner/order qualifier distinction still has considerable intuitive appeal. But there is no empirical evidence to suggest that, in the final analysis, the distinction radically informs strategy formulation. Therefore there is a need for a programme of research to examine whether and, if appropriate, how the order winner/order qualifier distinction is translated into action.

Strategy is about long-term decisions[72] and so, now that the long-term issue in manufacturing firms is seen less and less as the choice of the “right” structural and infrastructural elements of a manufacturing system and more as developing the ability to switch rapidly between emphases, what remains of the original manufacturing strategy project that is truly strategic? The core competence literature emphasizes “bundles” of skills and technologies[68] or even the process of configuring and reconfiguring these bundles[69] as the source of sustainable competitive advantage. These bundles are cross-functional or interorganizational (e.g. involving suppliers) and it therefore seems unlikely that the truly strategic could reside in any one function. The recent focus on business processes[73] rather than business functions is reflecting a similar, albeit more limited, philosophy. More profoundly, the core competence view implies that manufacturing strategy theory that deals with competitive criteria and decision areas really only addresses one superficial level of strategy, that of product-market competition. We do not have the theoretical tools or language to understand what the role of manufacturing may be in competing for competences. This is a major operations management research issue for the next five years.

One more time … implications for practitioners
The relevance of this paper for practitioners depends on how advanced they are in manufacturing strategy thinking and the type of market environments in which they operate. For the firm at Stage 1 or 2 of Hayes and Wheelwright's model[16], an internal debate about the choice of process type and infrastructure to support perceived competitive emphases must be a good first
step forward. If the firm operates in a market where customer loyalty is negligible – something approaching a “pure” market – then talk of “order winners” is appropriate.

However, where typical market relationships are rather more enduring and multi-faceted, then a more appropriate focus for such a debate is what makes their customers to maintain their relationships with them. Such a debate is likely to be much wider than the one required to establish order winners, encompassing the technological and other support services as well as the more traditional manufacturing strategy concern with the performance of the material conversion system.

Adopting the terms used by Thorelli[52], these two types of market relationships can be described as markets and networks respectively. These are combined with the Hayes and Wheelwright[16] four-stage model in Figure 5.

For firms in either type of market environment whose manufacturing strategy thinking is more advanced – say moving into Stage 3 – aspirations to “provide support for the business strategy” are short-sighted. The core competence view would say that this alignment with product-markets is only a small part of what is strategic. The more profound issues are:

- identify what embodies the trade-offs that do exist in the short term and work to eliminate them or mitigate them;
- identify capabilities that will be required even as products come and go, and devote manufacturing resources to acquiring them.

A good deal of the core competence literature emphasizes technology acquisition[65] but there are concerns more central to manufacturing that are likely to be pervasive and enduring. For example, even though products may come and go, the acquisition of competences relevant to introducing new products into production, or tracking performance objectives, is crucial.

The changes in volume/variety due to the product life-cycle has, in many industries, occurred over what could be considered the strategic long term. As product life cycles shorten, alignment of a manufacturing system with performance objectives is a month-by-month adjustment, not a year-to-year

![Figure 5. Strategy formation approach according to strategic maturity and relationship type](image)
One more time: how do you win orders?

References


“One more time: how do you win orders?”

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