



Academicians' Viewpoint on Port Managers' Prior Competencies in terms of Environmental Sustainability Performance of Container Port Enterprises in Turkey

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Abstract

Ports regard sustainability as of great importance in their efforts to sustain their corporate feature aiming to use resources effectively and comply with the environment and the society in which they are located. The activities an organization carries out its sustainability performance. Full compliance of this performance with the relevant natural and biological environment is greatly important. That's why the main point discussed in this study is the environmental sustainability performance of the port enterprises. As the competencies of port managers pay an important role in this performance, this study aims to scrutinize and evaluate these competencies of port operation managers in particular. To determine these competencies, a three-step Delphi technique has been used. This technique has been conducted through an expert group of 13 academicians. The results revealed 15 competency items. The identified competencies are believed to contribute to the effective process of selecting/employing managers in port organizations which will ensure corporate sustainability.

Keywords: Sustainability performance, Environmental sustainability, Manager competencies, Port operations manager, Ports.

Türkiye'deki Konteyner Liman İşletmelerinin Çevresel Sürdürülebilirlik Performansı Açısından Öncelikli Yönetici Yetkinliklerine Akademisyen Bakış Açısı

Öz

Liman işletmeleri, hem kurumsal devamlılıklarını sağlayabilmek hem de kaynakları doğru kullanan, içinde bulunduğu toplum ve çevreye uyumlu örgütler olabilmek için sürdürülebilirlik kavramını önemsemektedir. Bir işletmenin bu çerçevede gerçekleştirdiği etkinlikler onun sürdürülebilirlik performansını oluşturur. İçinde bulunduğu doğal ve biyolojik çevre ile uyumlu liman olgusunun önemli hale gelmesi nedeniyle liman işletmelerinin sürdürülebilirlik performansının çevresel boyutu ele alınmıştır. Bir işletmenin sürdürülebilirlik etkinlikleri, yöneticilerinin özellikleri ve konuya yaklaşımları ile ilgilidir. Bu çalışma, liman işletmelerinin çevresel sürdürülebilirlik performansı açısından öncelikli liman yönetici yetkinliklerinin değerlendirilmesini amaçlar. Çalışmada liman yöneticisi kapsamında operasyon müdürünün yetkinlikleri incelenmiştir. Yetkinliklerin belirlenmesi için üç aşamalı Delfi tekniği kullanılmıştır. Delfi uygulaması, 13 uzman akademisyenden oluşan bir uzman grubu ile gerçekleştirilmiştir. Çalışma neticesinde 15 adet yetkinlik maddesine ulaşılmıştır. Belirlenen yetkinliklerin, liman işletmelerinde yönetici seçimi ve sürdürülebilirlik çalışmalarına katkıda bulunacağı düşünülmektedir.

Anahtar Kelimeler: Sürdürülebilirlik performansı, Çevresel sürdürülebilirlik, Yönetici yetkinlikleri, Liman operasyon müdürü, Liman işletmeleri.

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1. Introduction

The concept “sustainability” implies the ability to keep going. This implication could cover the micro level of the resources and consumption balance available for any groups of animates living together as a family or it could be extended to a moderate level as the living conditions of a city. A macro perspective for this particular concept covers the effective and efficient use of the resources available on earth and protected against “global warming”. Thus, the micro and macro concerns have placed the term sustainability at the top place in not only the individuals and certain groups but also local and international groups and organizations. Besides, small-mid-large scale organizations also are the stakeholders of sustainability. As being related with concerns about the economic, social and environmental values all over the world, the connection between stakeholders in terms of sustainability is also directly related with keeping the healthy survival of businesses and organizations.

One of the main aims of businesses is to gain profits, so as to stay alive. In a sense, sustainable businesses are those that sustain their profitability. This could be right in terms of economic concerns, but it is not enough. To be called a “sustainable business”, companies are to act in full compliance with the biological environment as well as with the society which they are in contact with. Thus, the sum of all their economic, social and environmental activities reflects their sustainability performance. Businesses today are to keep their economic, social and environmental performances high if they are to survive in the severely competitive environment and to overwhelm their competitors. In line with this outlook, companies pay attention to sustainability practices and periodically issue reports so as to sustain their positions in the relevant market.

Forming a view on sustainability,

developing sustainability-related plans, implementing, monitoring and reporting such plans are all within the responsibilities of the managers, which means that sustainability performance of a company is directly related within the overall approach and competency level of relevant managers. The competencies of a manager directly affect the processes of decision making and implementation as well as the sustainability performance of a company.

The concept of sustainability is an important issue for port enterprises that are the centers where trade activities are intensive. Contributing to national and global economies, ports have been in close contact with the natural environment and societies in which they are located. Therefore, in order to survive, ports also exhibit a favorable level of sustainability performance, which requires managers with certain competencies regarding this context. In this respect, the competencies to be sought in the selection of port managers and the aspects of existing managers to be developed are considered important.

This study aims to reflect academicians’ viewpoints to reveal the prior competencies that port managers must have so as to affect and contribute to the environmental sustainability performance of ports. In this context, this study is based on the competencies determined by Tezcan and Kuleyin (2019) [1]. Findings of this study were compared with those competencies.

2. Conceptual Framework

The concept of “competency”, which emerged in 1960’s, was first discussed by McClelland in 1973 [2]. Since then, this term has gained importance in the field of human resources. Competency has been defined as “the individual attributes regarding work performance” [3]. In other words, individual attributes like knowledge, skills and abilities that are related with the high performance at work [4]. These definitions

imply that the term competency is related with the individual performance at work.

Managers at businesses are the persons who direct the subordinates in compliance with the targets of the companies [5]. This means that the competency related specifications of managers are important in the effectiveness and efficiency of the company. Several researches have been made in relevant literature on competency in diverse fields of business and managers at various levels [6-11]. The pioneer in this field, Boyatzis (1982) [3], has determined 21 items of competency required with an effective and efficient manager, regardless of the job description and field of the work. Robertson et. al. (1999) [12]; has pointed out 16 competencies that determine the performance of manager (e.g. commercial awareness, specialized knowledge, planning and organizing, leadership etc.).

With their organizational structures and size of activities, port enterprises accommodate a great number of employees and managers. There are various definitions of port employees at both national and international levels [13; 14]. Due to such differences in being state or private enterprises, the fields dealt with, scope and size, being local or international; there may be differences in terms of the organizational structure.

Fig. 1 reveals that a port management is carried out through a president or general manager at the very top, a financial and an operation manager under this top and sum management divisions under these executive officers. In many different port enterprises, the managers like for technical affairs, human resources and purchase-sales departments can be positioned at top management. This figure Subject to this research, "operation manager", for instance, takes place in all types of port management. A port operation manager is a top manager who is responsible for planning and directing/managing berths/

piers, equipment and employment as well as cargo operations and administrating all the employees working at these divisions [16]. The clear wealth and critical importance of such responsibilities makes an operation management a considerably high management position.

The sustainability related work at ports comprises concerns with the economic welfare, environmental quality and social responsibility [17] and an evaluation of sustainability performance requires considering all these three dimensions [18]. The literature on port sustainability has recently enriched [19-23] and "environmental sustainability dimension has been focused more [23-25]. "Environmental sustainability" is defined as "meeting human needs without compromising the health of ecosystems" [26]. For port enterprises in particular, environmental sustainability covers such topics as air and water pollution, using earth and resources, waste management, and noise and light pollution [18]. Ports that no harm to the natural and biological structure of physical environment in which it is located, in short ecoport or green port concepts, has taken in place in the agenda via environmental sustainability practices [27]. An environmental friendly port targets; using its sources efficiently, minimizing its negative effects on the environment in which it is located, in fact maximizing the quality of this environment and the level of environmental management [28].

Mackey (2008) [29] points out that the management leaders act as levers in business performance. The decisions made or to be made in compliance with the environmental sustainability targets of a port management are closely related with the overall perspectives of the port managers. According to Collins; the performance of a manager contributes to the performance and sustainability of the relevant business [30]. On the other hand,

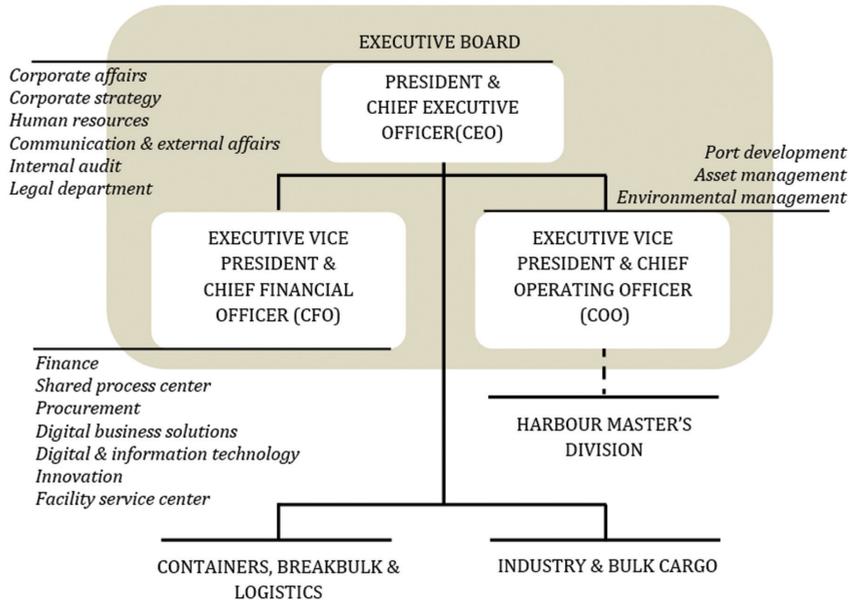


Figure 1. Organizational Structure of Port Top Management [15]

Source: Port of Rotterdam (2019) [15]

the sustainability of a business is affected by sub departments related with operational processes [31-32].

There are a few studies in the relevant literature on the competencies required with the port employees, is scant. Ahn and McLean (2008) [33], have determined 16 competencies within such clusters as “policy, system management, service, product development and promotion, information and globalization” required with the port and logistics personnel. Thai (2012) [34] has collected the 65 competencies related with the mid-level port managers under such three categories as “business related, port and logistics affairs related, and management related.” It has been noted that in the relevant literature, there has been no study on the competencies required with top port managers. Nor does this literature have any study on the contributions of the port managers to the port sustainability. Thus; a research on the effects of port managers on ports sustainability seems to be of importance.

3. Methodology

In this study, mixed research design has been adopted and Delphi technique has been used. This technique has long been used as an instrument enabling anticipations and making decisions [35]. Due to shortage in the studies on the competencies required at port management, this discovery method has been adopted as it enables revealing independent views. This technique has been used in researches aimed to determine manager competencies and characteristics [36-38].

3.1. Delphi Stages

Şahin (2001) [39] identifies this method as a reconciling method through which the participants freely put forward their viewpoints without having heard the viewpoint of the other participants, as result of which creative view are likely to appear. This method is structured as a platform through which the views of the participants are collected, and it has got a well-planned process through which data is collected

by means of consecutive questionnaires [40]. The reasons why Delphi technique is generally adopted could be highlighted as follows [41]:

- Utilizing subjective calculations where analytical methods are not appropriate in solving the problem,
- In analyzing complex problems, training the diverse experiences and expertise of participants who have not worked together,
- Difficulties and high costs and time consuming processes during arranging group meetings in the other methods,
- Involving a group work likely to increase the effectiveness of face-to-face discussions/arrangements,
- Involving a moderator/referee who can help overcoming the conflicts likely to appear in views of the participants,
- Involving heterogeneous participants and eliminating the dominant attitudes/ behaviors/individuals.

Straus and Zieigler (1975) [42] points out three type of Delphi as “Nominal Delphi” used to determine the least anticipation, “Historical Delphi” used to determine the points favoring the previously made decisions or alternative views, and “Political Delphi” used to define the responses to and options for any political problem

expected. Rowe and Wright (1999) [43], put forward “Classical Delphi” as an instrument for justifying, decision making, and anticipation. Rauch (1979) [44], has offered the “Decision Delphi” used to form the future and make decisions rather than anticipating only. The basic specifications of the Delphi techniques could be highlighted as follows: “anonymity, iteration, controlled feedback” and “statistical aggregation of group responses” [43].

A thorough review of the relevant literature reveals that the Delphi method is carried out through several stages. Skulmoski et. al. (2007) [45] highlight these stages as follows (see Fig. 2).

3.2. Determining the Experts

Delphi studies are based on the participants’ sharing their knowledge and cooperation. Hence sampling is of great importance [46]. In this study, the experts have been determined through the aim-oriented sampling, “which enables the selection of the deep knowledge sources in accordance with the purpose of the study” [47]. Thus, the target group of this study has covered the academicians (n=84) employed at departments of “Maritime and Port Management” and “Maritime Business Administration” within the universities

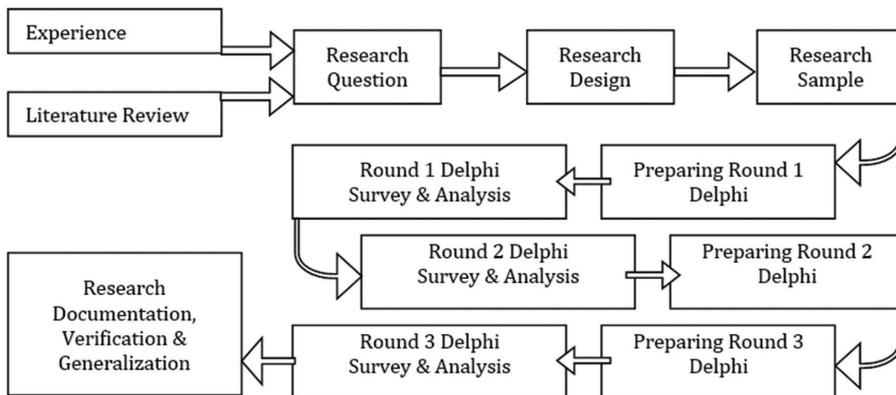


Figure 2. Delphi Process in the Research
 Source: Adapted from Skulmoski et. al. (2007) [45]

of Turkey. The Delphi surveys were sent to all of the members of this group. The sample has been selected among the respondents who replied to the first Delphi stage. Experience in maritime and port operations was sought in selecting the sample. Eventually, 13 academicians have constituted the sample (see Table 1).

Hsu and Sandford (2007) [48] points out that the size of the sample at Delphi studies might vary. The size of the samples in many Delphi studies ranged from 15 to 20 [49]. Gordon (1994) [46], however, argues that

Delphi studies could be carried out with 10 and more participants. In addition, the sample size could be minimum 7 according to Şahin (2001) [39].

3.3. Designing the Delphi Process

The Delphi process in this study is comprised of three stages: defining the competencies of port managers, seeking consensus on whether the defined competencies are inevitable, and determining the priorities through these competencies in terms of port sustainability.

Table 1. The Specifications of Expert Academicians

No	Gender	Title	University	Department	Academic Experience (year)	Sectoral (Maritime and Port) Experience (year)
E1	Female	Asst. Prof.	Kocaeli	Maritime Business Administration	17	4
E2	Male	Lect.	Bursa Uludag	Maritime and Port Management	10	3
E3	Female	Asst. Prof.	Kocaeli	Maritime Business Administration	10	3
E4	Male	Lect.	Istanbul Gelişim	Maritime and Port Management	2	7
E5	Male	Lect.	Yalova	Maritime and Port Management	9	20
E6	Female	Lect.	Sinop	Maritime and Port Management	2	2
E7	Male	Lect.	Akdeniz	Maritime and Port Management	8	4
E8	Male	Assoc. Prof.	Piri Reis	Maritime Business Administration	36	36
E9	Female	Lect.	Beykoz	Maritime and Port Management	7	6
E10	Male	Lect.	Mersin	Maritime and Port Management	2	13
E11	Male	Prof.	Dokuz Eylul	Logistics Management	17	17
E12	Female	Assoc. Prof.	Dokuz Eylul	Maritime Business Administration	15	15
E13	Female	Assoc. Prof.	Dokuz Eylul	Logistics Management	14	14
Average Experience:					11,5	11,3

Source: Created by the authors

This design was conducted/implemented in April-June 2019. As for data collection; semi-structured interviews have been used in the first stage, and questionnaires have been used in the second and the third stages. For data collection and feedback the participants have been contacted through e-mail.

The first stage focused on 22 items of competencies revealed by Tezcan and Kuleyin (2019) [1]. This stage consists of an open ended question which is: "What sort of competencies do you think a port operation manager must have in terms of the environmental sustainability performance of a port?" The participants have been required to list and define the competencies other than the above mentioned 22 items.

The second stage has focused on the thorough review of the items in the first stage [48]. The participants have been asked to evaluate the competencies determined in the first stage in terms of whether each is "required" for environmental sustainability performance of ports. The idea in doing this is to determine the percentage of consensus on each item. In Delphi studies, 70-80% agreement is said to be acceptable [50]. Thus, the third stage has been started with the items each of which had received 70% and over consensus.

At the third stage, participants have been asked to range the importance of each of the items determined in the second stage. In this evaluation, 5-Likert scale has been used, ie. *1. Least important, 5. Most important*.

It is difficult to determine the validity and reliability in Delphi studies; the answers of participants to a question might change in different stages, open-ended questions etc. [51]. However, choosing the appropriate method and experts to the research, explaining the data collection and application/consensus processes transparently can support validity and reliability [52].

3.4. Limitations

Port operations involve handling diverse types of cargoes and ships. Hence, the competencies required for a particular type of a port handling certain types of cargoes and ships cannot be generalized. Considering this point, this study has focused on the competencies required for a port in the field of "containerized cargoes and container ships".

The term "port manager" covers various top management positions. In this study, the competencies required for "operation manager" have been discussed. The main reason for this choice is that they are most closely related with/affected by any sustainability activities carried out at ports.

This study has been conducted through the ports located in Turkey. Studies on ports in other countries might reveal diverse findings.

4. Findings

In addition to the 22 items of competencies determined by Tezcan and Kuleyin (2019) [1], the competencies revealed through the first round of Delphi study are indicated in Table 2.

The number of the proposed competencies is 25. Categorizing the similar ones in the same sets has resulted in 20 newly proposed competencies. The ones collected in the first column under "competencies proposed" at Table 2 (human relations, communication, leadership, personnel management, meteorological analysis, foreign language, dangerous cargo knowledge and, proactivity) already have the counterparts in the "competencies already determined"; thus they have not been taken into consideration. The nine competencies listed in the second column (corporate social responsibility, stress management, crisis management, risk taking, green port practices, ethical behavior, self-criticism, conflict management and ship-related knowledge) have been proposed by one

Table 2. The Already Revealed Competencies by Tezcan and Kuleyin (2019) and the Newly Proposed Competencies

Competencies Already Determined			Competencies Proposed		
Emergency practices	Port and operation planning	Teamwork ability and management	Human relations	Corporate social responsibility	Safety management
Field knowledge/ Expertise	Regulations / procedures	Basic vocational knowledge	Communication	Stress management	Security management
Analytical thinking	Motivation	Delegating	Leadership	Crisis management	Open-minded
Sensitivity	Customer-oriented	Management skill	Personnel management	Risk taking	
Action-oriented	Organization	Cargo knowledge	Meteorological analysis	Green port practices	
Target-oriented	Planning	Cargo stowage	Foreign language	Ethical behavior	
Business understanding	Problem solving		Dangerous cargo knowledge	Self-criticism	
Decision making	Coaching		Proactivity	Conflict management	
				Ship-related knowledge	

Source: Created by the authors

of the panelists only; hence they have not been considered/ included in the overall evaluation. The three competencies in the third column (safety management, security management and open-minded) have been put forward by at least two of the panelists, so considered important and been added to the existing competencies.

In the second stage, as a result of the evaluation of a total 25 competencies, in terms of whether each one is required or not, "coaching" has received below 70% consensus (n=8, 61,5%) so it has been eliminated from the questionnaire (see Table 3).

Table 3. The Percentage of Agreement on Each Competency in Second Stage

No	Competencies	N	%	No	Competencies	N	%
1	Emergency practices	13	100,0	14	Planning	12	92,3
2	Analytical thinking	13	100,0	15	Field knowledge/ Expertise	11	84,6
3	Safety management	13	100,0	16	Sensitivity	11	84,6
4	Regulations / procedures	13	100,0	17	Action-oriented	11	84,6
5	Organization	13	100,0	18	Security management	11	84,6
6	Problem solving	13	100,0	19	Business understanding	11	84,6

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Table 3. The Percentage of Agreement on Each Competency in Second Stage (Cont')

No	Competencies	N	%	No	Competencies	N	%	Consensus Level
7	Basic vocational knowledge	13	100,0	20	Customer- oriented	11	84,6	
8	Basic vocational knowledge	13	100,0	21	Delegating	11	84,6	
9	Open-minded	13	100,0	22	Cargo knowledge	11	84,6	
10	Management skill	13	100,0	23	Cargo stowage	11	84,6	
11	Decision making	12	92,3	24	Target-oriented	10	76,9	
12	Port and operation planning	12	92,3	25	Coaching	8	61,5	
13	Motivation	12	92,3					

Source: It was created by the authors within the framework of Delphi research

Table 3 reveals that 10 of the competencies (emergency practices, analytical thinking, safety management, regulations and procedures, organization, problem solving, teamwork ability and management, basic vocational knowledge

and open-minded) have received full agreement.

The rank of the evaluation ranges from 72,3% - 94,0% (see Table 4). The competencies which have received an agreement percentage of 80% and

Table 4. The Level of Importance for Each Competency

No	Competencies	N	%	No	Competencies	N	%	Consensus Level
1	Safety management	4,70	94,0	13	Basic vocational knowledge	4,08	81,5	
2	Security management	4,70	94,0	14	Field knowledge/ Expertise	4,00	80,0	
3	Emergency practices	4,62	92,3	15	Delegating	4,00	80,0	
4	Decision making	4,62	92,3	16	Business understanding	3,92	78,5	
5	Regulations / procedures	4,62	92,3	17	Organization	3,92	78,5	
6	Problem solving	4,46	89,2	18	Planning	3,92	78,5	
7	Open-minded	4,38	87,7	19	Cargo knowledge	3,92	78,5	
8	Analytical thinking	4,31	86,2	20	Customer- oriented	3,85	76,9	
9	Action-oriented	4,31	86,2	21	Motivation	3,77	75,4	
10	Target-oriented	4,31	86,2	22	Sensitivity	3,69	73,8	
11	Management skill	4,23	84,6	23	Port and operation planning	3,62	72,3	
12	Basic vocational knowledge	4,15	83,1	24	Cargo stowage	3,62	72,3	

Source: It was created by the authors within the framework of Delphi research

more are considered to be “the prior competencies of port managers in terms of port sustainability performance”. The agreement level kept at 80% to provide distinctiveness. The distinction has revealed that 15 competencies (safety management, security management, emergency practices, decision making, regulations / procedures, problem solving, open-minded, analytical thinking, action-oriented, target-oriented, management skill and basic vocational knowledge) have received agreement.

5. Conclusions and Discussions

This research has revealed the prior competencies a port operation manager must have in terms of the sustainability performance of a port. Ten out of fifteen competencies revealed seem to be in parallel with the competencies a manager in general must have [53:54]. The remaining five (safety management, security management, emergency practices, regulations and procedures, and basic vocational knowledge) are directly those exclusively a port operation manager must have, and separate port operation manager from the managers in other fields. Such competencies as “business understanding, organization, planning and motivation” have been found to be not prior in port environmental sustainability performance. Besides, it is surprising that such competencies as “cargo stowage, port and operation planning and cargo knowledge” have also been deleted in this research from the list of the preliminary required competencies. These competencies are generally thought to release certain environmental effects. Considering that the 22 competencies involved in the research are those already determined by the experts from the relevant industry (Tezcan and Kuleyin, 2019) [1], this view findings indicate that expert academicians do not agree with the experts from the industry on the

prior competencies. Particularly the two competencies (safety management and security management) that were revealed as the most important by the expert academicians of this research confirm this outlook.

The findings of this research reveal a difference between the competencies a manager must have in terms of port sustainability performance and its environmental dimension. Besides, another difference was revealed between the views of experts from industry and experts from the academic world.

The fifteen competencies revealed through this study are thought to be considered prior for port operation managers exclusively. The overall findings of this study are thought to be taken into consideration both in recruiting, hiring and promoting as well as in the on-the-job training and in achieving the required port and environmental sustainability. Since this study has revealed the competencies a port operation manager must have in terms of environmental sustainability, similar studies could be carried out on the competencies required for top managers other than port operation managers. Besides, such studies that evaluate if there is a difference or not in terms of competencies considering the cargo type the port engaged in, can be meaningful.

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