# THE SEEMING CONTRADICTIONS OF THE INTEREST OF THE PORT AUTHORITIES AND INVESTMENT COMPANIES - THE DRIVING FORCE FOR THE DEVELOPMENT OF THE PORT OF GDAŃSK

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**Abstract** Today the port of Gdansk are experiencing a revival as a major transportation hub located on the southern never iced coast of Baltic sea – in area believed to be one of the easiest developing regions of the European continent. Territory of port of Gdansk very logically assembly with specialized berth and terminals. New investors ask permission for example for opening a new liquid cargo terminal in inner port of Gdansk and contrary is proposition to adopt crude oil pier located in outside port for possibilities of developed passenger terminal for biggest cruisers which draft not allowed to enter inner port.

Another idea to establish car hub in part of port which was specialized in timber and refrigeration cargos. Traditional distribution of port activities due different circumstances have to change. In this situation: maritime administration, port pilots, security officers and others are extremely unhappy and against to the new ideas. From one side some organizations try developed new business and activities, but from other hands important local organization are against due to environmental protection increasing dangerous areas etc. Apart of EU project of corridors (from Croatia to Gdansk and Scandinavia) new government of Poland press to create pararel new corridor which not include Gdansk as a port of discharging. Intention of developing of eastern part of Poland project offer port of Klajpeda as more effective than Gdansk and Gdynia. Certainly Gdansk and Gdynia do not accept competitive solution.

Gdynia Maritime University was asked last year to prepare an expertise concerning mentioned new projects. Using our simulators and theoretical approach was prepared a controversial for some organization opinions and declarations.

**Keywords:** port authority, GMU, port management, security, maritime administration

## 1. Characteristic of Port of Gdansk

The largest share in the commodity port structure was general cargo, which served over 14.5 million tons, or 23% more than in 2015. The share of general cargo in Gdansk increased from 30% in 2015 to 39% in 2016, exceeding For the first time in history liquid fuel turnover. This is all due to the increased dynamics of container transshipment at the DCT terminal, which over the past 12 months has reached as high as 1.3 million TEUs and was 19% higher than in 2015.

The second in the Port of Gdansk transhipment statistics, liquid fuels recorded a 13 million tons turnover last year and were 13% less than in 2015. In this loading category, there are interesting changes in the proportion of exports and imports. In 2015, the ratio of imported oil in export to export was 97% to 3%, while in 2016 the ratio was 85% to 15%, mainly due to new investments by PERN (tanks), which restored oil port in the port in export relation.

In the category of bulk cargo, coal handling exceeds 5 million tons (13% increase compared to 2015), which has been unreachable in recent years. Last, the best result in this respect was recorded 12 years ago, when in Gdansk in 2005 nearly 7 million tons of coal was transhipped. Since then, port reloading in this commodity group has been very uneven and has fluctuated between 1 million tons in 2008 and 4.6 million tons in 2013. The key to this trade has also changed. While in the year 2015 the dominating relationship was exports of coal and coke, which accounted for 57% of the group's transhipment structure at the time, in the past year exports were 38%. At present, the Port of Gdansk receives more coal from abroad than it sends it to the world.

Good transshipment results were also obtained in the group referred to as "other bulk cargoes". Over the past 12 months, they have been reloading 3.5 million tonnes, which is 4% more than a year ago. Just like in 2015, almost half of the aggregates were reloading aggregates, which in the past year amounted to 1.66 million tonnes. There were also nearly half a million tons of granular sulfur and less than 200,000 tons of feldspars. The characteristic for last year was a large one, as the over 70 percent increase in soda handling, which in total completed last year 280 thousand tons.

The remaining iron ore category was a very small part of the overall port reloading. In 2016 it was over 200 thousand tons - it was much more than a year earlier (85 thousand tons).

Significant falls at the level of 21% were recorded in the transshipment of cereals. In total, last year, they shipped 1.15 million tonnes (1.6 million tonnes in 2015). The biggest drop in this drop was in the meal, which in 2016 was over 60% less than the year before. Wheat (25%) and corn (up 113%) were significantly better.

In 2016, for the first time in two years, the share of exports in port cargo traffic increased. Both in 2014 and 2015 in Gdansk, the ratio of exports to imports was 39% versus 61%, while in the past year exports accounted for over 41%.

2016 was a successful year for the Port of Gdansk. In January, the expansion of the intermodal container terminal at the Inner Harbor was completed. In the same month of use, a new cooler was built by PAGO - a specialist in the field of comprehensive logistics services for frozen products in Poland.

April saw the opening of the first underwater tunnel under Martwa Vistula in Poland, which merged the left and right bank of the port. The continuation of this investment was the modernization of the railway line no. 226 and the construction of the railway bridge to the Martwa Vistula River, which is the main transport axis for railway traffic in the port.

In July, the CEF Transport Coordination Committee approved a list of transport projects, including three projects submitted by the Port of Gdansk Authority SA for a sum of more than 600 million zlotys, from the CEF. This decision was finally crowned in October when the Port of Gdansk Authority signed a grant agreement.

Picture 1 shows :

1. Project of Oil Company ORLEN of revitalization inner port (Wislane/Szczecinskie Quay). Project No.1 analyzed in chapter 3
2. Project of 1000m concrete quay in Outer Port (North Port). Project No. 2 analyzed in chapter 4
3. Deep Water Container Terminal 2
4. Oil Storage “PERN”
5. The planned situation area for the construction of the Central Port.


**Pic. 1 . Port of Gdansk and 5 the most important investment projects**

## 2. Two research projects realized by Gdynia Maritime University

In 2016 Bogumil Laczynski and Adam Weintrit received 2 proposition of different research projects concerning development and changing usage of existing quays in Port of Gdansk.

**No. 1**

Project No. 1 ordered by the biggest Polish Oil concern ORLEN who is a new owner of part of Inner Port of Gdansk and storage / loading shore infrastructure. “ORLEN” intent to invest in way of modernisation of Wislane / Szczecinskie quay and prepare place for loading / discharging operation of max 20,000 tons specialized product tanker. Researchers should answer few questions : is above possible to achieve ? and how to eliminate any objections of Port of Gdansk users ?

**No. 2**

Should analyze and show possibilities of adopting North Port pipeline pier to bursings 1000m long new quay with unknown yet occupancy. Gdynia Maritime University researchers should answer only one question : what is an influence of new 1 km long concrete quay for other parts and terminals located in outer port (North Port) ? What are manoeuvring possibilities of entering ships, what are the restrictions of port safety office and finally researchers should propose occupancy in the future.

## 3. Project No. 1

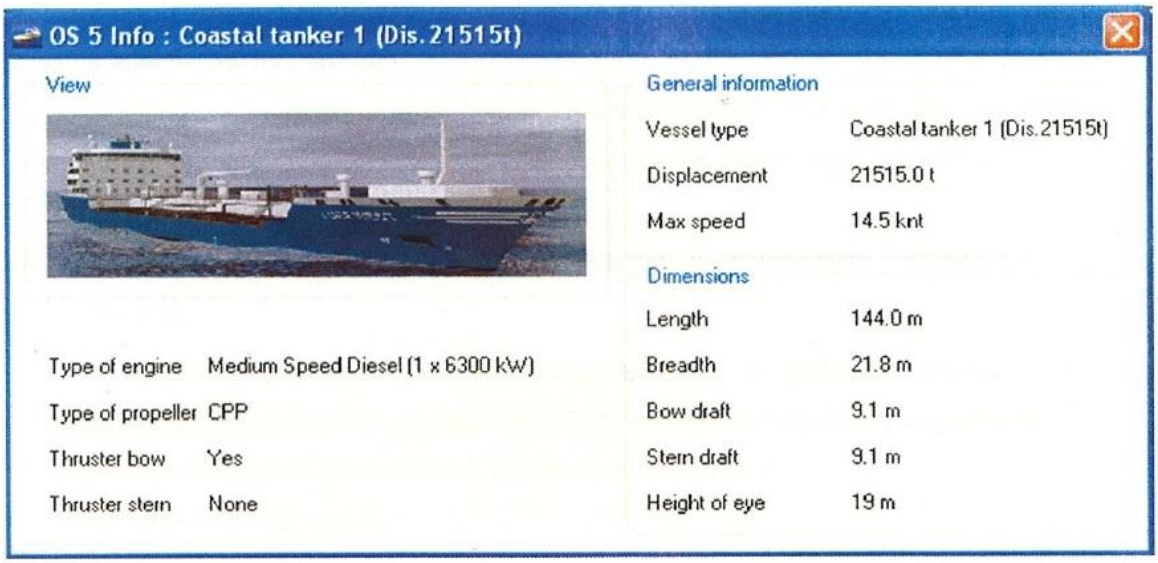
Gdynia Maritime University , apart of Szczecin Maritime University, was asked to prepare an expertise of navigational approach and future functionality modernized Szczecinskie and Wislane quay in Inner Gdansk Port.

Polish Oil Concern, Orlen owned old part of Port (CPN-3) with old tanks and shore equipment and intent to adopt pier to discharging operation of costal tankers up to 20000 DWT (pic.2). Research content optimalization of vessel approaching for berthing, mooring operation and shifting (if any) (pic. 3) safety enter to port condition of berthing, shifting and mooring operation.

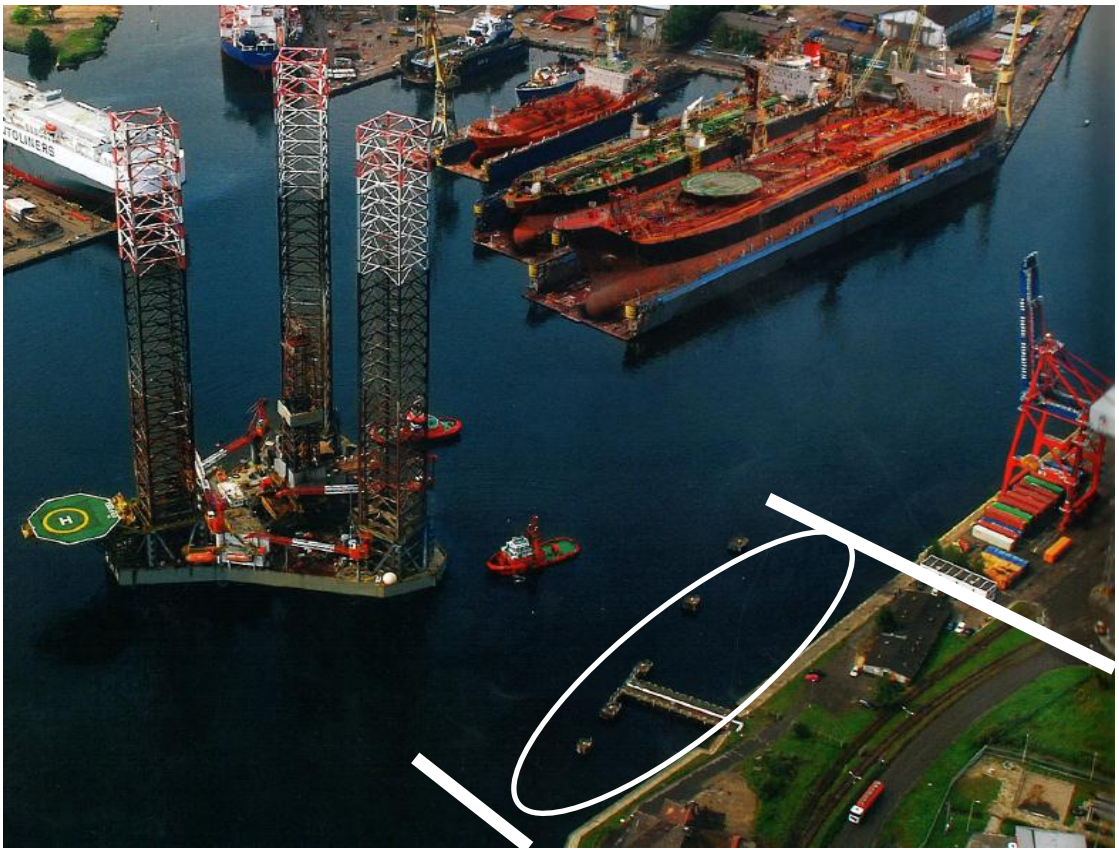
All existing mooring equipment will be eliminated, new turning circle with diameter 330 m replace existing 300 m circle. Conditions for piloting, using tugs and berthing operations were prepared. Optimal distribution of pollard berth equipment were calculated (pic. 4).

Orlen is ready to establish anti pollution system. Experiment on Simulator NaviTrainer 5000

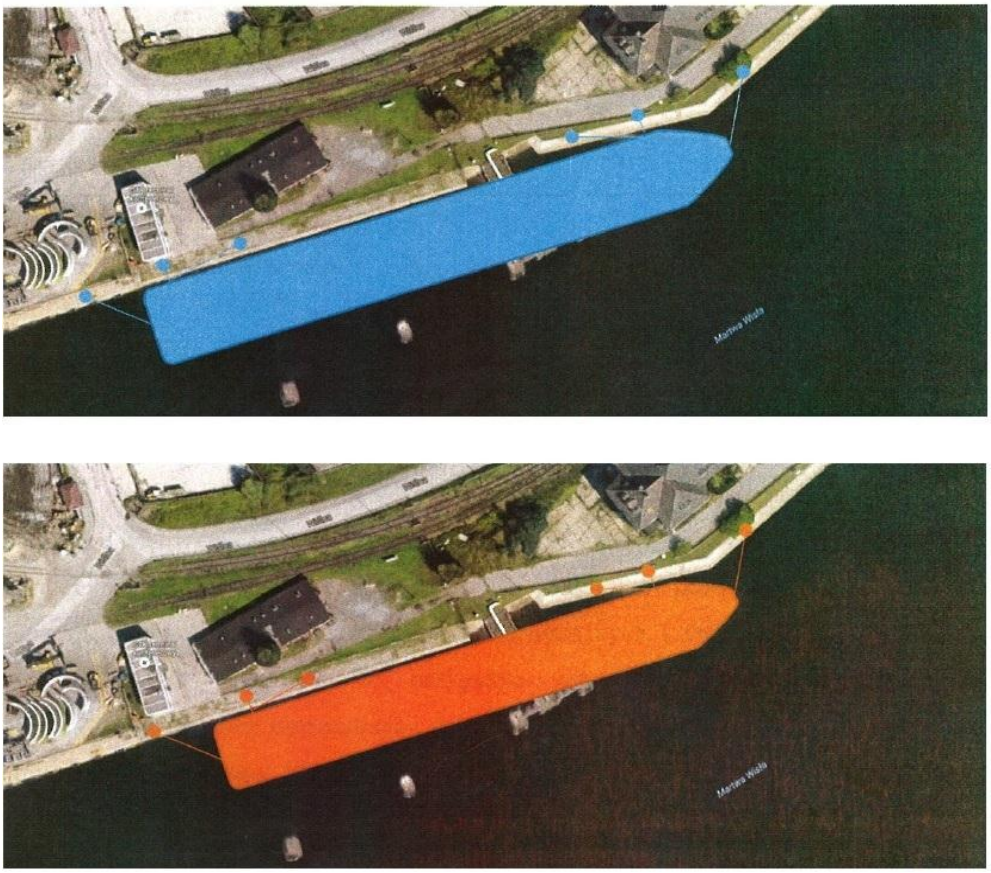
cooperating with Simulator NaviSailor 4000 (Transas) helps to pass 42 passages done by authors of the article (pic. 4). General observation for maneuvering in different conditions (direction of wind, waving) were shown. Certainly pilots and safety officers do not like new ideas and concepts, but after the discussion and giving the guarantee of protection of new quay, trained personnel, monitoring from shore and water side, etc. they became more friendly for proposed ideas.



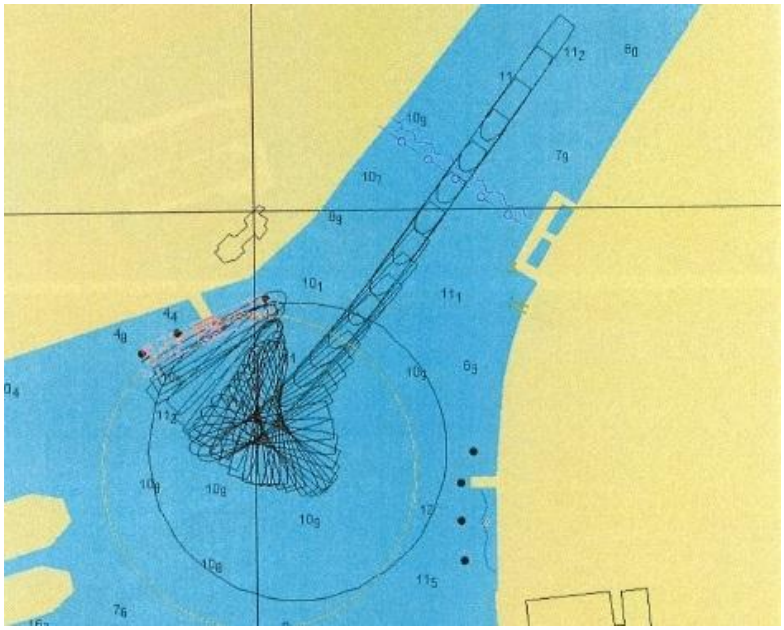

**Pic. 2 Typical tanker for Wislane / Szczecinskie pier**



**Pic. 3 Location of new proposed Wislany/Szczecinski Quay.**



**Pic. 4 Berthing possitions of 100,000 and 200,000 tons tankers**



**Pic. 5 Print out of one of 42 passages and approaching new quay**

## 4. Project No. 2

Final decision of authors from Gdynia Maritime University is YES.

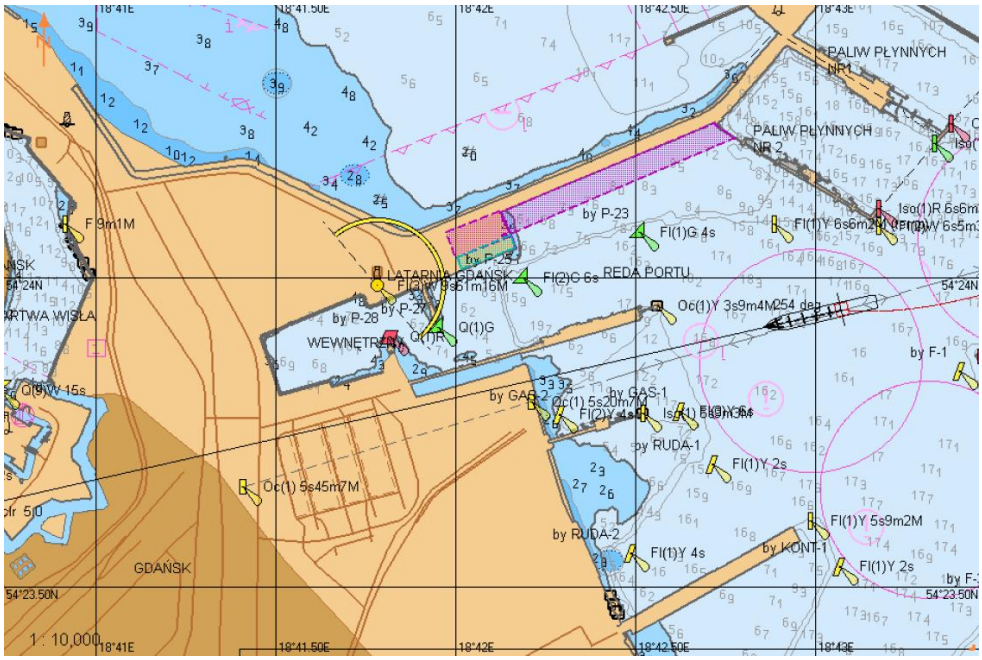
New Northern Berth as a new construction should be accepted by all neighbor companies

acting in North Port. 3 steps of building consist of 108 m + 478 m + 416 m new berth (Pic. 6 and pic. 7). According to local regulations minimal distance from oil pipelines should be 20 m. No any infrastructure on new berth except system of routes / ways will be done. New pier will be dedicated for big passenger vessels. Actually Gdańsk offer places for 240 m long cruisers and with draft up to 8 m. in expertise was analyzed distribution of reflected waves inside port and their influence for other mooring vessels.

NNW wind directions (80% per year) will not complicate mooring operations. Apart of cruisers new place can be offered for layed-up vessels, short period repair position, occasionally for operation Sail Tall ship races, place for Polish offshore vessels and many others. Analyze of cargo operations possibilities and elimination of dangerous situation in such close distance to oil terminal there is a part research. System of security, monitoring and safety guarding should be established.

New system of turning cycles and fairways for the proposed pier were done by Gdynia Maritime University.

**Pic. 6 View of new quay location**




**Pic. 7 Location of proposed new berth.**

## 5. Conclusions

Several discussion with representatives of different port's offices and organizations shown to researchers many unexpected problems and adversities.

Existing formal restriction can be changed and adopted by for example Maritime Administration. Traditionalistic orientation as a part of human character and natural reserve to any fundamental changes is an important indicator to break.

Researchers observed more elastic orientation of Port Authorities after every next meeting and new reconciliations.

In project No. 1 there are limitations of port space, but "ORLEN" decided to cover all expenses that arise in situation of temporary shifting of product tanker along quay (tugs, pilots, etc.) to give a free practice for big objects entering a shipyard ( what happens not very often apr. once a month).

Big developing of rail and highway in last years gives a chance to organize loading/discharging operation to/for specialist container and trucks as well as storages into shore based tanks particularly in inner port.

Proper organization, safety restrictions, fully monitoring operation – practically minimalize danger (pollution, collisions, fire, explosions, etc.) Pessimistic oriented experts shown new underwater tunnel, football stadium, etc. as a potential risk.

Traditional antagonistic 2 parties situation:

One side rich company intent to invest in obtained part of port and the other side different

organisation presented potential and fictitious danger.
Experiment done on special prepared simulator fully confirm possibilities of access to analyzed parts of port. In both projects should be issued as practical berthing guide authorized by Maritime Administration Office in Gdynia.

Two projects realized by Gdynia Maritime University are an important part of great port development plan

The Gdańsk port in 10 years is supposed to be much bigger. The strategy predicts construction of deep-water new quays and terminals.

Gdansk harbor has a development plan envisaging gigantic investments. Under the assumptions of the development strategy until 2027 is the construction of the Central Port. It is located between Naftoport and the outlet of the internal port channel. There are deep-sea container terminals, container terminals and transshipment facilities. Also planned is the construction of a new ro-ro terminal in the outer port, in the immediate vicinity of the DCT Gdansk terminal. Faculty of Navigation of Gdynia Maritime University hopes to participate in ambitious development plan of the biggest Polish port, Gdansk.

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