Internal Communications: DT as Cultural Change Driver

Leonida Bucci, CDO, Esri Italia

High Level Training on Digital Twin applications in Port ecosystems, Venice 28th Jan 2025

...Back to Life Cycle View

We already showed how the life-cycle view is the most suitable paradigm for the roles and duties of a Port Authority in regard to other Stakeholders

Now let's have a look at the different stakeholders INSIDE the Port Authority. For simplicity, we will divide them into four different levels:

- Strategy – its objective is the market positioning, according with international and national regulations. It is where major choices, especially for investments, are taken

- Planning – its objective is translating strategic choices in transformation programs

- Implementation – its objective is to carry on programs and projects designed at the planning level

- Operations – it ensures maintenance, surveillance, access, permissions, leases, payments, etc

How The Four Levels Cooperate?

Very often, a Port Community System plus a bunch of dedicated, usually not fully integrated, applications are the backbones of Operations

All the other levels use portions of the PCS or other dedicated applications in a rather siloed way

Communications between the levels is very often based on paper or some digital representation of paper (emails, PDF or even CAD files, when used only as convenient paper substitutes)

Someone Out There Is Running Faster

Is paper (or digital paper) bad? Inherently not, many successful infrastructure have been built and run for decades mostly on paper.

Anyway, paper is eminently close and static. It suits a slow world

But the world is moving fast, trades are constantly growing, competition is high, time and prices are the main KPIs

The competition is embracing the digital revolution to become faster and more affordable, and even an Authority has to face the market

Strategy Communication Needs

To shape the future the Strategy needs not only an up-to-date view of what the port <u>actually</u> is and does (Operations) but also:

- a clear comprehension of what is outside the port that it is impacting its evolution

- emulations of the future state, projecting KPIs and costs scenarios in the to-be state

- an integrated view of the risks, especially those introduced by the climate change and the geopolitics

The Strategy level is also in charge of steering the transformation programs as the scenario evolves

Planning Communication Needs

The Planning level translates the strategic lines of action in Transformation Programs and projects. In doing that it must take into account, among others

- The state of other undergoing programs and projects
- The constraints coming from the Operations
- The risk scenario and its evolution

The Planning level may also be asked to redesign or replan some of the Programs when the Strategy level steers, or the Implementation level raises major issues

Implementation Communication Needs

The Implementation level takes the design and macro planning coming from the Planning level and produce the changes. It must ensure

- Smooth day-by-day interoperability with other programs and projects

- Constant alignment to Operations to minimize impacts and disruptions

- Project and programs KPIs production and monitoring (including environmental KPIs)

- A constant update to the Planning and Strategy levels, to allow for their steering duties as the scenario evolves

Operations Communication Needs

The Operations level must have a clear comprehension of what is happening in the Port in terms of functionalities, maintenance, security, etc

It needs to communicate with Stakeholders external to the Authority to allow their smooth, productive and safe interaction with the Port

But it's not enough: transformation plans may impact Operations and as such it must be very well aligned on programs and project plans to anticipate impacts and plan response actions

It is a source of vital information for all the other levels, as the main productivity KPIs of the Port are shaped by the Operations

The Standard Way of Communicating

In traditional approaches each level has its own set of "representations" of the actual port, focused to its own role and its own set of information (silos)

Messages are exchanged in various forms with all the other levels to give and receive directions and feedbacks and manage changes

Such approach has one simple advantage: it is simpler to realize and (apparently) to maintain

There are many drawbacks:

- Every level has a time-gap in knowledge, as the information exchange is usually time-discrete
- Semantics can be different, and the information exchange may introduce adaptation biases
- The information exchanged may be partial or incomplete, as every level decides what to share and exchange

The DT Way of Communicating

In a Digital Twin approach:

- every level contributes its data directly to the Digital Twin
- every level reads data directly from the Digital Twin, and uses them mostly in the Twin

The Twin is the authoritative source: the information is complete, is available whenever needed (no time gap), has a common semantic (adaptation biases risks are not eliminated but strongly reduced)

Some warning:

- The fake Twin → every level retains its own data and simply aligns the Twin, that is not authoritative
- A Digital Twin needs commitment, initial investments and constant maintenance, or it turns out into a roadblock

The DT Way of Communicating

What is the most difficult thing in switching to the DT as THE tool for the internal business communication?

- It is not technology – we are in a brilliant shape in terms of available technologies

- It is not investments – a carefully drafted business case easily shows a high ROI

- It's the human factor – it asks for a cultural change
  - sharing
  - transparency
  - accountability

Conclusions

Using the Digital Twin as the vital component for internal communication should not be seen as an option, but rather as a structural feature.

Using the Digital Twin all the different stakeholders inside the Port collaborate in a fast, accurate and risk-managed way

Modern competition cannot be faced with siloed approaches any more

Interreg

Co-funded by
the European Union

Italy – Croatia

DIGITPORTS

Contacts

Esri Italia, IT

lbucci@esriitalia.it

+39 348 1934662 / +39 335 5758262

https://www.italy-croatia.eu/it/web/digitports