Hailed as a “symbol of modern Turkey”,
the 3rd Bosphorus bridge is the
widest suspension bridge in the world.
Featuring the highest suspension bridge
tower ever seen globally, this massive
engineering undertaking is set to propel
Turkey towards its ambition to become
one of the world’s ten largest economies
by the year 2023. It is no exaggeration
to say that the pioneering scale of its
construction, alongside its aesthetic and
technical features, makes this one of the
most important bridges in the world.

Cem Erer, Planning and Controlling
Director of 3rd Bosporus Bridge and
North Marmara Highway Project, ICTAS-
ASTALDI Consortium, gives the
lowdown on this most complex of
endeavours and explains how Asta
Powerproject was used on the project.

A megaproject of this size is
enormously demanding to manage,
with many key challenges needing
to be overcome in delivering the
project to a very ambitious technical
specification. It required having the
right people and resources and a quality
planning software. After reviewing
options available, the company chose
Asta Powerproject as the software to
underpin the project. Erer says “We
chose Asta Powerproject, because it
is not only powerful, but also very
easy to use. We needed to find a way
to track planning amongst a large
number of stakeholders. It enables us
to understand the project’s status in
real time, and it is also user-friendly
for ease of adoption. We have found
Asta Powerproject to be a solution
that contributed towards the smooth
execution of the project.”

Background to the project
The 3rd Bosphorus bridge forms part
of the Northern Marmara Motorway
Project executed by IC İctas – Astaldi
Consortium. It is a project that is
widely considered to be the future
of transportation and commerce for
Turkey. Built on Istanbul’s Bosphorus
after the Bogazici Bridge, which began
operating in 1972, and the Fatih Sultan
Mehmet Bridge, which was completed
in 1988), this 3rd bridge is without doubt
a ground breaking project. The concept
design is the result of a collaboration
between structural engineer Michel
Virlogeux (known as the “French
bridge master”) and Swiss Company,
T-Engineering.

The 3rd Bosphorus Bridge:
At a Glance
Key stats
- Cost: Over £1 billion
- Model: Build-Operate-Transfer
- Execution Company: IC İctas –
Astaldi Consortium
- Time period: 10 years, 2
months and 20 days
- Manpower: 7,000 construction
and 500 operational staff
- Concept Design: Michel
Virlogeux and T-Engineering
- Project Management software:
Asta Powerproject

Scale
- The longest suspension bridge
incorporating a rail system at
1408 metres main span
- The widest suspension bridge
in the world at 59 metres
- The highest tower of any
suspension bridge in the world
at 322 metres
- 8 lanes of motorway and 2
railway lines all on the same
level
Construction of the bridge goes hand-in-hand with the development of the Northern Marmara Motorway. The motorway is nearly 115 km in length and has 19 junctions and linking roads. It is located in Odayeri – Pasaköy part of the project. This motorway project was put out to tender on the 20th April 2012. Using the Build – Operate – Transfer model, the motorway’s completion is designed to relieve the traffic load of the Odayeri – Pasaköy lane, as well as the first and second Bosphorus Bridges, which are still in use. This development is designed to resolve the transportation problems that currently exist in Istanbul.

Nearly 7,000 people were being employed during the construction phase of the 3rd bridge alone, and at least 500 people will be needed for the operational phase. Istanbul is aiming to become a significant global centre of finance and business and these new transport connections will be instrumental in achieving this by encouraging new investment in the region. In fact, this bridge and the interconnected rail and air infrastructure that is being created will be highly significant in achieving Turkey’s ambition to become one of the 10 biggest global economies by 2023, making it a very exciting prospect for everyone involved.

We chose Asta Powerproject, because it is not only powerful but also very easy to use.

Pushing the boundaries
The level of innovative engineering and advanced technology involved in designing and delivering this vast project cannot be stressed enough. Most of the team behind its design and execution have been Turkish engineers, who have been really pushing the boundaries with their work. In addition to the bridge, there is the scope of the work planned for the North Marmara Highway, which is also a massive undertaking. As Erer says, “this is the first time that we have excavated 4 lane tunnels in Turkey, and we are dealing with a total excavation area of 236m2 – that means that anticipating a daily excavation rate of 8,500 lorry loads, over a period of one and a half years. The highway will feature no less than 67 viaducts and 693 piers, of which just over half are more than 20 metres high. Even in the field of megaprojects, this is pioneering work that we’re undertaking.”

Mitigating risk
Such projects are inherently risky due to long lead times, as well as levels of complexity, technology and design which push beyond normal standards. So a common risk is that of “uniqueness bias” amongst managers. The decision process typically involves multiple actors and stakeholders who all have their own motivation and that can potentially result in conflicting interests. Erer says “Our company embraces change and challenge and has extensive experience of managing megaprojects. We pride ourselves on the responsibility we have for these very important projects that will serve our country’s growth in such a profound way.”

One of the challenges was that with Istanbul’s 3rd Bosphorus project having such a very high profile, people were interested in following the progress and understanding what was happening on a daily basis. Erer adds, “ When you’re working on such a visible project that affects so many people you have to be especially diligent, because there is zero tolerance around any mistakes. Ensuring that our planning strategy was right and maintaining meticulous organisation was key to our success, and as a result we focused very heavily on planning for every scenario. We used Asta Powerproject to support us at each stage of the project. The technology ensured that we kept the project plan live and always responded to any updates or changes, so that our estimates remained accurate and there were no surprises.”

Throughout the project the team worked on the aim to “plan the work and work to the plan”. Erer explains that ensuring that plans were updated in real time as the project developed was a key strategy in achieving a successful outcome. “Of course, an important part of that planning, especially on a project of this scale, was to ensure that we

The reporting capabilities of Asta Powerproject helped us keep everyone involved informed at all stages of the project.
developed realistic estimates and put pre-mitigation and post-mitigation plans in place at the very early stages so that we were always prepared for what we faced next. Our technology partners really helped us in this area."

The company naturally take risk very seriously and spent a lot of time conducting risk assessments and workshops with the planning team, considering all of the external factors that might have impacted on the project and measuring possible cost-time-safety impacts. Erer explains, "everything starts with good planning, and as an organisation we know from our experience that the right planning and risk assessment really does ensure safety on-site. Asta Powerproject proved extremely helpful due to the ability to run multiple ‘what-if’ scenarios to consider how a wide variety of potential situations could impact the plan, explore possible counter measures and to understand the impact on the plan."

**Collaboration was crucial**

With a large number of international partners, designers, subcontractors, and material suppliers in the same project, not to mention the 7,500 people involved on the construction side, collaboration was crucial to achieving goals in a megaproject like this. Defining the right project strategy, implementing successful and transparent planning and building up healthy communication between project stakeholders were all tactics used to ensure that everyone was working towards the same common goal and with the same understanding. Erer explains, "the reporting capabilities of Asta Powerproject helped us keep everyone involved informed at all stages of the project."

**Training and support**

With a project like this it is not just about looking after external stakeholders. The company also invests heavily in people and their skills, particularly on the engineering side, where Erer emphasises the importance of developing skills and knowledge of all staff and ensuring that they have the very best education and training. Erer summarises how the support he received from the teams behind the software played an important role, "It was vital to have full confidence in our solution provider, FND (Future Network Development), Asta Powerproject’s partner in Turkey. Together, the Asta and FND teams supported us with a detailed level of knowledge and insight at every stage of the project. This may seem a simple point, but it really was crucial in delivering a megaproject like this successfully – especially given the ground-breaking nature of the engineering, design and technology involved."

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**About Elecosoft UK Ltd**

Elecosoft UK Ltd is a leading international developer of project, portfolio and resource management software. Its core product, Asta Powerproject, provides solutions for managing any size and any type of project and is widely recognised as one of the world’s leading project management software solutions for construction.

Elecosoft UK Ltd is a part of Elecosoft plc, a holding company focused on software development and services for architectural, engineering and construction industries. The company is listed on the London Stock Exchange’s Alternative Investment Market (AIM).

More information about Elecosoft UK Ltd and its products can be found at astapowerproject.com and information about Elecosoft plc can be found at elecosoft.com.