

## Customer story

# Yodeck: Raspberry Pi's “amazing balance between power and cost” supports worldwide digital signage success

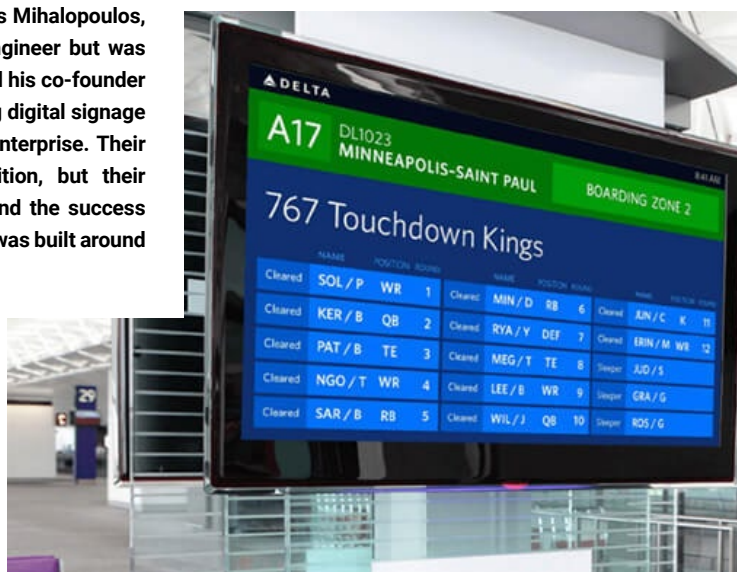
Digital signage has become a multi-billion-dollar industry. Yodeck was quick to predict the potential: they needed hardware to support their reliable, cost-effective and easily managed service, with no compromise on performance. Raspberry Pi 4 proved a perfect match.

|                       |                 |
|-----------------------|-----------------|
| Raspberry Pi solution | Raspberry Pi 4  |
| Size of business      | SME             |
| Industry              | Digital signage |

Digital signage company **Yodeck** was founded in 2014, having emerged from a previous company that provided digital displays and signage based around PCs. The Athens-based company has a staff of 60 with offices in Cyprus and in the US, and is active in 135 countries. They are successful participants in a worldwide digital signage market that, from a standing start a decade ago, is set to rise to \$45 billion by 2030, according to analysts Grand View Research.

The company was set up by CEO Vangelis Mihalopoulos, who has a background as a software engineer but was also drawn to business. Mihalopoulos and his co-founder Dimitris Tsingos recognised the emerging digital signage market and set about launching a new enterprise. Their first product was a PC-based proposition, but their chosen hardware setup didn't take off and the success they enjoyed in their native Greek market was built around too specialised a product.

“We were inspired by the power and flexibility of Raspberry Pi – it was a perfect match”



## The challenge

Mihalopoulos and his colleagues quickly realised that cost and scalability were constraining issues in their nascent digital signage portfolio. Their existing product's appeal and scalability were limited, while the production and maintenance costs of a PC-based digital signage offering meant it was also very expensive.

In the early days of digital signage, businesses found it convenient to save images and video clips to a USB thumb drive, connect it to a laptop or desktop computer, and play their marketing and sales information that way. However, this was both insecure and unreliable: an unguarded USB device could easily be swapped for one playing unwelcome content, and the drive might be hacked, fail, or simply fill up. Meanwhile, the content itself would need to be updated manually. A better approach would be to push content automatically to client devices, ensuring consistent messaging across different displays and different sites or franchise locations.

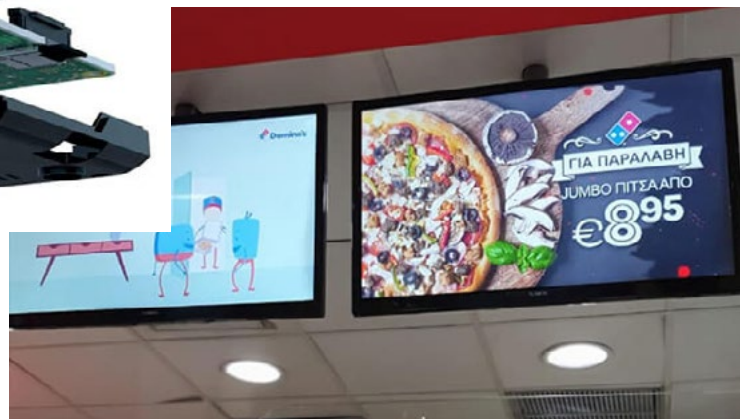
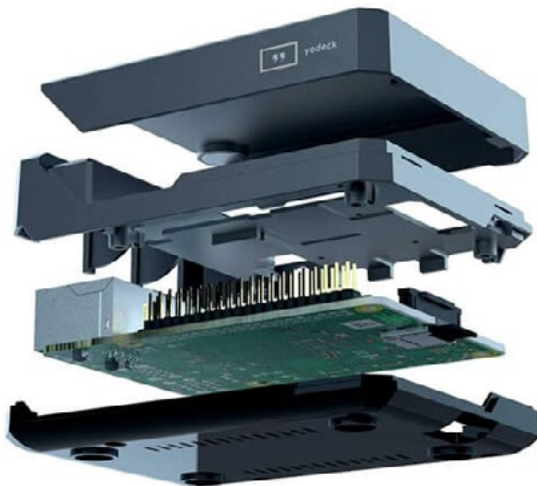
Mihalopoulos was quick to grasp this issue, and set about creating a solution that would deliver just such a multi-screen service.

**“The amazing support from the Raspberry Pi engineering team has enabled us to scale to tens of thousands of units globally”**

## The solution

Yodeck began with a screen-first approach, working with San Francisco-based startup Flipnode to create a simple interface for their cloud-based business. Having realised that Raspberry Pi would work well as the hardware basis of their solution and would help Yodeck deliver “an affordable, yet powerful, digital signage platform”, they developed a Python-based application to use with Raspberry Pi that would handle content playback, scheduling, device management, and other aspects of the service.

“We actually built the business *after* we saw Raspberry Pi,” says Mihalopoulos. “We were inspired by the power and the flexibility of Raspberry Pi, and we decided that it was a perfect match for what we were considering. We realised it would be a great opportunity for the global market.” The plan was to provide a managed digital signage service to customers of any size “from multinationals to the small shop around the corner, and to do so in a reliable but cost-effective way, without making big sacrifices in performance”.



## Why Raspberry Pi?

Yodeck chose Raspberry Pi because it was affordable, powerful and reliable, it provided high quality in a small form factor, and it was available to buy in so many territories globally, matching Yodeck's international ambitions.

The ability to provide remote support and troubleshooting for Yodeck's digital signage displays was essential, and access to the underlying code for Raspberry Pi's Linux operating system made this readily attainable. It's vital that both customers and Yodeck's support team are able to remotely monitor each device's screen status and the status of the Raspberry Pi hardware itself. "From the very beginning, we wanted to offer a service that offers ease of use and affordability," Mihalopoulos told business tech site Startup.info. Yodeck currently has a five-strong team dedicated to developing software exclusively for use on Raspberry Pi.

Mihalopoulos says a key factor in Yodeck's global expansion was selling a product that's based on a known and respected single board computer that can be bought in customers' own countries. For example, in South Africa – an overseas market for Yodeck, whose offices are in Europe and the US – they have 2000 business customers.

## The results

Customers use Yodeck's content management system to create playlists and screen layouts using the photos, graphics, and video clips they upload. Playback can be scheduled, and layouts and messaging updated, all from an online dashboard; where no internet connection is available, it can also be played locally from an SD card. It's a model that has proved resilient to a global pandemic, economic downturns, and changing digital consumption trends.

The company offers a range of hardware options. Many long-term Yodeck customers begin with a single, free-to-use Yodeck installation and then add more screens once they have trialled the setup and as their digital signage needs increase or the advantages become more apparent. Models include the Raspberry Pi 4 Model B version with 16GB SD card and an Argon40 Neo case; the hardware is provided free to anyone signing up for a year-long Yodeck subscription. However, Yodeck also works on any model of Raspberry Pi, including NEC displays fitted with Raspberry Pi Compute Modules 3 and 4. Approved resellers purchase Raspberry Pi hardware locally and assemble Yodeck Players themselves, "adding to the flexibility of not having to stock specialised hardware," Mihalopoulos explains.

**"amazing balance between power and cost, while being one of the most reliable pieces of hardware out there"**





The performance improvements between successive models of Raspberry Pi have helped Yodeck to develop its offering. Having started development in 2014 with the first-generation Raspberry Pi 1 Model B, Yodeck launched in 2016 with the more powerful Raspberry Pi 2: “performance has steadily increased, allowing us to build more and more complex features, thus growing along with Raspberry Pi. It is our platform of choice for delivering our service.”

Crucial factors for Yodeck’s ongoing enthusiasm for Raspberry Pi are the continued backwards compatibility (going back to the original Raspberry Pi Model B released in 2012), the active community, and the excellent software support. “The amazing support directly from the Raspberry Pi engineering team has enabled us to easily scale to tens of thousands of units deployed globally.”

Mihalopoulos also cites Raspberry Pi’s “amazing balance between computing/graphics power and total cost, while also being one of the most reliable pieces of hardware out there”. As of late 2022, Yodeck had shipped almost 50,000 Raspberry Pi-based units, and failure rates are impressively low: with a current total of 80,000 active units in 135 countries, they have had only “a handful” of returns.

This trust and reliability are echoed in Yodeck’s own story: while other companies saw businesses cut back on expenses, especially ones related to the number of people viewing their content, Yodeck’s modest, modular payment model was deemed sufficiently good value and effective that almost nobody cancelled their service plan during the coronavirus pandemic. Those who did take a break quickly came back: Yodeck’s service was so cost-effective, and the ability to update on demand was more than worth the outlay.

Retail and healthcare are key verticals in the digital signage market, and Mihalopoulos sees opportunities for growth by exploring AI and customised messaging: for example, displaying information relating to childcare and paediatric health in nurseries and doctor’s surgeries when families are waiting for their appointments.

Yodeck has built a trusted and popular system that’s going from strength to strength: “our customers love us, with a rating of 4.9 out of 5 from 660 online [Capterra] reviews,” Mihalopoulos enthuses. “We absolutely love the Raspberry Pi.”

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