



ANNUAL REPORT 2020

The President's introduction **"The suspended time: the year that does not want to end"**

- Joy Marino -

This is not a usual introduction that accompanies the MIX Annual Report. With the approval of the MIX 2020 Financial Report, my term as MIX President comes to an end and therefore it's time to say goodbye.

I wanted to title this note "The suspended time" because this is the feeling that accompanied me throughout 2020 and in the first months of 2021. The pandemic, the intermittent lockdowns, the much awaited but postponed announcements of "we are coming out of it", has made last year's journey feel like a long suspension of time that never seems to end. But actually, 2020 was a memorable year indeed for both MIX and the stakeholders operating within this complicated period. Above all, it was a year of maturity and growth for MIX. At the age of 21, as a young adult, MIX has proven that can face and overcome challenges. It has consolidated within a period growth as Italy was compelled to embrace digitisation and our country "really" began to revolve around the Internet.

The numbers speak for themselves, MIX has grown in all possible metrics and has strengthened its financial position to better face the challenges that Your time is limited, so don't waste it living someone else's life. Steve Jobs

La vie est trop courte et le temps bien trop précieux pour le perdre avec des sots. Voltaire

Whether it is the best of times or the worst of times, it is the only time we have. Art Buchwald

await us in the years to come. We have bolstered the organisation, hiring new staff and through elections renewed nearly two-thirds of the Board of Directors. We have positioned MIX as one of the leading IXPs in Europe and are ready to confront any future challenges in Italy and abroad.

On a personal note, I have spent half my working life as the president of MIX and by comparison all the other periods of my career fade; I am proud of what MIX has achieved in recent years; I am grateful to the talented men and women of MIX for what they achieved together. I have shared beautiful and sad moments with all of them and I thank each of them for what they have given to me from a human perspective. I hope I have also given something comparable in return, cherished relationships that over time have transcended the simple working level.

First and foremost, companies are made of people, and then of ideas, and only lastly of infrastructures and economic accounts. This lesson I have witnessed first-hand as the leader of MIX. I would like to close this note with two words that whirl in my head every time I think of MIX. I apologise for the abuse of English, but unfortunately my mental settings often want to use it!

I have spent a lot of time, over the last 15 months, giving interviews and contributing to articles in the media: what happened as a result of the pandemic and, beyond all of the lockdowns and consequent changes in the behavior of Italians, was a unique opportunity to explain to the layman what the function of an Internet Exchange is. And if "resilience" was one of the most abused words in all contexts during 2020, never before was a term more appropriate to explain the function MIX had in this juncture and, by extension, what lies at the base of the DNA of MIX and its people: to be resilient.

In my past as an engineering student, then transformed, from a bribe to a bribe, into a computer engineer and then a network technologist, there was also, 50 years ago, a course in "Construction Science" (no real practical use for all subsequent years, I do confess...).

Yet, the image that, in my opinion, best represents the function of MIX in an unexpected and potentially catastrophic situation was the explosion of Internet traffic following the first lockdown of 2020. It refers precisely to that of an elastic joint which, suitably placed at the center of the infrastructure of a large building, rigid in itself (and therefore fragile), it allows it to withstand even the immense stress of an earthquake. Resilience, in things and systems - but also in people - presupposes a certain flexibility and adaptability, but above all it means the ability to resist and cope with adversity. I see this coming through both in the MIX structure they created and in the people who are part of it.

RESILIENT

1. adjective Something that is **resilient** is strong and not easily damaged by being hit, stretched, or squeezed.

Cotton is more resistant to being squashed and polyester is more **resilient**.

...an armchair of some **resilient** plastic material.

resilience uncountable noun

Do your muscles have the strength and resilience that they should have?

2. adjective

People and things that are resilient are able to recover easily and quickly from unpleasant or damaging events.

George Fraser was clearly a good soldier, calm and resilient.

When the U.S. stock market collapsed in October 1987, the Japanese stock market was the most resilient.

resilience uncountable noun

...the resilience of human beings to fight after they've been attacked.

Synonyms: suppleness, give, spring, flexibility.

Synonyms: strength, toughness, adaptability, hardiness.



I recognise my literary limitations, but I can't find any word in our beautiful language that punctually expresses the strength of this medieval English term (from Old Norse, says the Oxford Dictionary): to thrive.

Companies are growing, they are successful, they are healthy. Plants grow and bloom by drawing on the soil. Some people show that they react in a determined and positive way to the obstacles that life presents. This is my final observation about MIX, based both on the knowledge of people, one by one, and on the results - objective and subjective - of the previous 20 years and in particular of the latter.

But it is also a wish that MIX continues "to thrive" for a long time, in continuity with what we have built so far, together.

THRIVE

Word forms: thrives , thriving , thrived.

1. verb

If someone or something **thrives**, they do well and are successful, healthy, or strong.

Today his company continues to **thrive**. Lavender **thrives** in poor soil.

...the river's thriving population of kingfishers.

Synonyms: prosper, do well, flourish, increase

2. verb

If you say that someone thrives on a particular situation, you mean that they enjoy it or that they can deal with it very well, especially when other people find it unpleasant or difficult.

Many people **thrive** on a stressful lifestyle. Creative people are usually very determined and **thrive** on overcoming obstacles.

IDENTIKIT

• Leading Italian IXP, founded in 2000, long standing history of service

• Highest concentration of connected networks in Italy

• One of the few European IXPs equipped with its own datacentre

• Carrier-neutral and data centre-neutral

• Interconnection services available at 8 different datacentres in Italy

 Authoritative resource for Italian Internet traffic statistics & trends

IN NUMBERS















Shareholders including the main Italia TELCOs

*For ASNs Source: IXPDB by Euro-IX

OOLO-IX

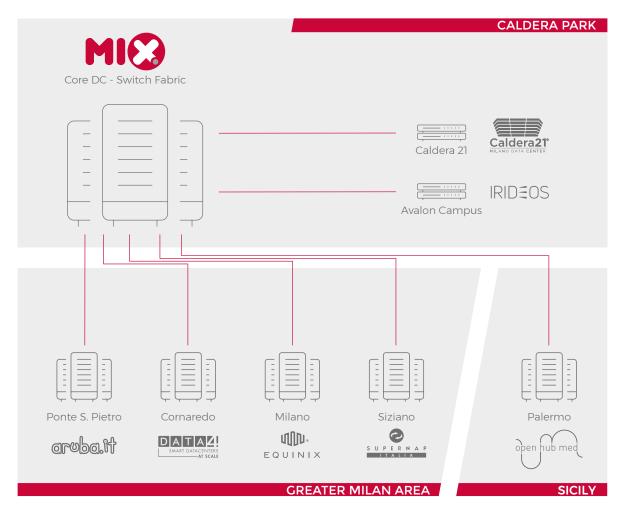
MIX is one of the founding members of Euro-IX, the European Internet Exchange Association, whose purpose is the coordination, the exchange of knowledge and experience and the development of harmonisation activities between the IXPs of different countries for the benefit of the entire European Internet community.



With approximately 150,000 km of submarine cables reaching Sicily, Italy is the natural hub for the "wet nets" of the Mediterranean.

Exploiting this strategic positioning to strengthen Italy's role in the international telecommunications sector was the driver that led to the establishment of the Open Hub Med (OHM) Consortium.

The Consortium was founded by MIX together with other important national and international players.



CERTIFICATIONS



In keeping with its role as an essential component of the Italian Internet infrastructure, MIX maintains a high level of vigilance in relation to all aspects of reliability and security.

Confirming the level of excellence of its services and infrastructures in these areas, MIX has obtained an ISO27001 certification, a standard issued by the International Organization for Standardization (ISO) which covers all the aspects of security of IT systems and processes. MIX is the first IXP to overcome the controls required by ISO certification.

MIX has also obtained the OIX-1 certification, currently issued to only 5 IXPs worldwide by Open-IX. This certification defines the standards of performance, reliability and resilience for large-scale interconnection services.

One of the key factors in achieving these certifications was the complete control of the two Data Centres built in the Caldera campus. The Data Centres are managed in total autonomy by MIX, entirely under its direct responsibility.

SERVICES



Peering Services

As Italy's leading Interconnection platform, MIX provides a number of solutions to meet your network needs.

Peering Services enable all networks to interconnect with one another to exchange internet traffic.

Interconnecting with other networks can be achieved in the following ways:

Public LAN Peering

The MIX Public Peering service offers a direct connection to exchange Internet traffic with a multitude of connected networks on the MIX high-speed layer 2 interconnection platform.

Private LAN Peering

This service facilitates interconnections with connected networks at MIX to establish an interconnection agreement via a dedicated private VLAN with another specific network operator.

Private Network Interconnection (PNI)

This service allows two connected networks to establish a dedicated and direct connection between their equipment within the MIX datacentre.

Carrier Services

MIX offers Carrier specific services at the MIX Datacentre where the MIX Core switches are located. Carriers are able to provide telecommunications services to other entities through their own transmission equipment or optical terminations at this MIX managed Datacentre.

Within a specific, protected part of the colocation facility with guaranteed functionality, MIX carriers are ideally positioned to offer:

- \cdot Interconnection services to operators connected on the MIX peering LAN
- · IP-Transit services to the wider Internet
- Interconnect their equipment (active or passive) to other MIX connected networks located in the datacenter

All of this easily, quickly and at a fair cost.

PARTNERSHIP PROGRAM

The Partnership program is designed to facilitate the connection of networks to the MIX peering network from locations other than where MIX has its physical switches installed.

To better cover the different needs and offer more opportunities to partners, two different partnership models have been developed:

• The **Reselling Program** is a Qualified Service of the Reselling Partner to bring networks (Reseller Customers) to MIX through a onestop-shop agreement.

• The **Pooling@MIX Program** is a Best Effort Service of the Pooling Partner to connect networks (Pool Element) to MIX on a pooling port.

The elements common to both of these services are as follows:

• Reseller Customers and Pool Elements peer to MIX independently and they appear on the MIX connected network list.

• First level support is provided by the Partner.

• L2 interconnection support to the LAN peering is provided by MIX

• Colocation services of client devices at MIX locations are not allowed.

MIX PARTNERS

RESELLER PARTNERS

Airbeam China Unicom (Europe) Operations Ltd. Fiber Telecom GTT Italy IX Reach Redder Telco Retelit Retn Supernap Italia Telecom Italia Sparkle

POOLING@MIX PARTNERS

BBanda Briantel Fiber Telecom Internet One Itesys IX Reach Lepida Sirius Technology Wifiweb

DATACENTRE SERVICES

The MIX Datacentre is an optimal solution for housing network and transmission equipment intended for interconnecting at MIX.

The MIX Datacentre has been divided into four separate and specific areas to offer a tailored solution and to professionally manage both requested interventions by the MIX NOC staff, for connected network devices and for the arrival of newly connected networks.





BLU AREA dedicated to MEMBERS RED AREA for TLC NETWORKS ORANGE AREA for SPECIAL BID

GREEN AREA for INCOMING FIBERS



BENEFITS OF MIX

- Enhanced network performance
- Reduced network latency
- Improved customer and end user connectivity experience
- Reduced IP transit costs
- Better insight and control over routing and Internet data flows
- Increased redundancy and resiliency of your network connectivity
- Direct connections with other networks in a secure environment
- Highly reliable connectivity platform adhering to the highest technical standards

INTERCONNECTIONS

Announced



210.000+



2.100+ PNIS



336 Connected Networks

IP network prefixes





CONNECTED NETWORKS



CONTENT DISTRIBUTION





INTERNET SERVICE PROVIDERS





CLOUD PROVIDERS



CARRIERS



ON-DEMAND CONTENT PROVIDERS



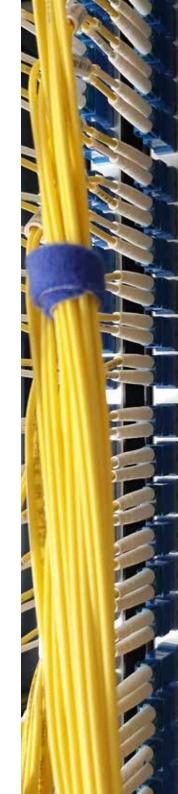
PUBLIC ADMINISTRATION GOVERNMENT



LIVE CONTENT PROVIDERS



RESELLERS







AIIP - Associazione Italiana Internet Providers	11.47%
BT Italia S.p.A.	11.09%
Clio S.p.A.	2.49%
Eolo S.p.A.	15.00%
Fastweb S.p.A.	1.12%
Irideos S.p.A.	15%
It.Net S.r.l.	5.37%
Orange Business Italy S.p.A.	1.12%
Retelit S.p.A.	3.28%
Sequenza S.p.A.	3.37%
Telecom Italia S.p.A.	11.09%
Tiscali Italia S.p.A.	2.25%
Tiscali Financial Services SA	1.12%
Utility Line Italia S.r.l.	3.98%
Vodafone Enterprise Italy S.r.l.	2.25%
WindTre S.p.A.	9.97%

BOARD

On May 29, the annual meeting of MIX shareholders was held and was called to vote for the renewal of the office, at the expiry of the three-year term of the Board of Directors.



Eugenio Contatore ITNET



Andrea Giovanardi BT Italia



Federico Protto Retelit



Vittorio Figini Utility Line Italia



Alberto Maria Langellotti TIM



Vincenzo Scarlato Irideos



Joy Marino President



Marco Fiorentino A.I.I.P.



Roberto Loro Utility Line Italia



Giulio Signorelli Wind Tre



Alessandro Talotta Vice-President



Guido Garrone Eolo



Andrea Podda Tiscali

PEERINGCREW



Valeria Rossi General Manager

Giorgia Montano Secretary

Leonardo Schiavini NOC Mauro Magrassi Chief Technical Officer

Michele Perrucci DC Manager

Simone Morandini Service Development Manager

Giovanni Verzotti Accountant **Cristiano Zanforlin** Chief Commercial Officer

Martina Mordà Inside Sales NEW ENTRY

Daniela Cipriani Marketing & Communications Manager

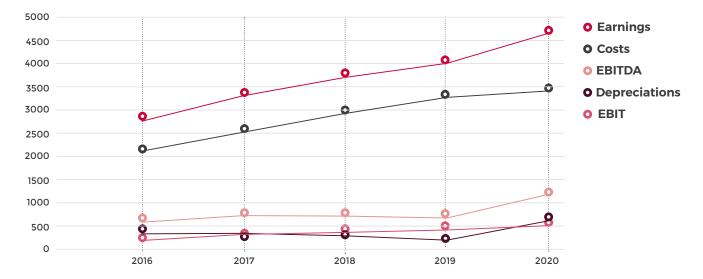
Gaetano Tomasi NOC Monica Arensi General Secretary

Gabriel Ramini IT Manager

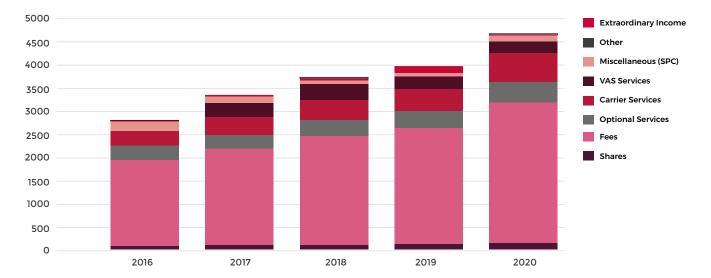
Gianmarco Clerici Network & Security Manager

FINANCIAL RESULTS

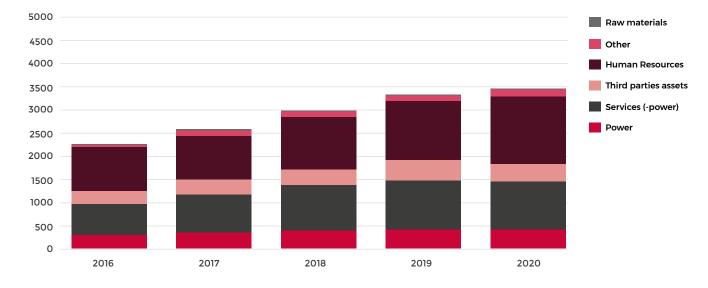
PROFIT & LOSS



EARNINGS



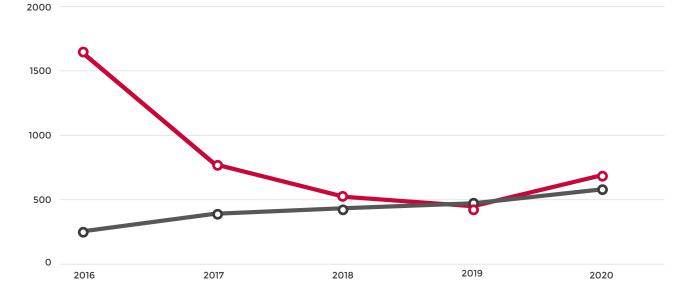
COSTS



INVESTMENTS

Investments

O Depreciations





Anniversary
20 YEARS OF MIX

On 28 January 2000, twenty-eight of the most significant Italian Internet companies constitute MIX S.r.l. The company statutes state that the share capital of each of the shareholders cannot exceed 15% of the total and neutrality would be a distinctive and essential feature of the new Internet eXchange Point (IXP). The presidency has since been assigned to Joy Marino, a professional with significant experience in the field of information technology and a leader within the first Internet networks in Italy. The role of General Manager was given to Valeria Rossi, an expert in networks and former coordinator of the NOC at GARR, the Italian national computer network for academia and research.

Reflecting on twenty years of MIX, Joy Marino said: "Twenty-five years ago we were few who imagined the future that was coming, but it was clear to us that the Internet would, step by step, unhinge all traditional activities and transform society itself. We understood that only through cooperation between competing companies would the Internet services market, necessary to grow companies and the whole of Italy exponentially, be born. From this intuition the MIX company was established. With the minimum business capital that all the operators of the time contributed, we can be proud to have always had the ability to read the changes and to invest to make MIX develop into a strategic asset for Italy. I believe that the combination of experience, skills, ability to invest and network of relationships built over twenty years has been key to continuing to play the role of the main hub of the Italian Internet that everyone recognises in MIX. I don't know how the Net will evolve in ten or twenty years but, whatever it becomes, MIX will be an indispensable element of it ".

Today MIX operates as a "multiple interconnection" point where the networks of over 300 Internet operators (ISPs, carriers, content providers, hosting companies) are connected to perform peering efficiently and at advantageous costs. At the beginning of 2020, the traffic exchanged exceeded one Tbps but a transmission bandwidth approximately seven times greater is available, allowing the exchange of Internet traffic for multimedia applications without any loss of performance.

The level of excellence achieved over the years has also aroused a growing interest from foreign operators asking to interconnect their equipment at the MIX Datacentre in via Caldera or at one the 7 MIX PoPs in Italy where it provides its services.

20 years of MIX in numbers: since our humble beginnings, the amount of exchanged traffic has grown a thousandfold, the surface of the datacentre increased from 150 to 1000 square meters; the number of connected networks increased from the initial 50 to more than 340, of which 25% are international.



Events SALOTTINO

On 7 May 2020, the MIX Salottino took place – our meeting devoted to technology and networks held exclusively for MIX customers.

The Salottino has always represented an opportunity for professional updates and networking for both old and new customers alike. Due to the Covid-19 pandemic, the 2020 edition took place online: this new format proved to be a success.

More than 150 participants were presented updates and participated in discussions on DDoS thanks to six exceptional speakers, namely: Marcin Nawrocki (Freie Universität Berlin), Frank Dupker (NaWas), Sean Newman (Corero), Antonio Giannetto (Reevo), Matteo Berlonghi, (SeFlow), Marco Paesani (Fiber Telecom) – and moderated by Massimiliano Stucchi (ISOC).



Events

MIX TECH SUMMIT

In the wake of the success of the first online edition of the Salottino, the first MIX Tech Summit was organised on 7 July 2020. This webinar lasted 90 minutes, with talks regarding BGP, RKPI and MikroTik by Matteo Berlonghi (SeFlow) and Massimiliano Stucchi (ISOC).

During the event, the more than 80 participants had the opportunity to ask questions to the speakers and also interact with one another.





100% National coverage

MIX has at least one peer in all the Regions of Italy



Achievements

100% NATIONAL COVERAGE ACHIEVED: MIX CONNECTS OPERATORS FROM ALL OF THE REGIONS OF ITALY

In the year of its 20th anniversary, MIX has reached another important milestone: the "completion" of the boot. With the connection of Wenetwork in Basilicata, MIX now has at least one peer in all regions of Italy.

Cristiano Zanforlin, MIX CCO said: "Thanks to our members, we have concluded the first step that sees MIX reached by all regions in Italy. Some of them are already in step 2, thanks to the presence of local MIX-pooling and Sicily is already in step 3 with a full MIX PoP. We aim to stimulate the growth of distributed ecosystems, ideally managed by local ISPs to achieve greater performance and more efficient traffic routing than a large central node. The is still much to be done but today we have completed a fundamental step: the presence of each region".

Traffic data recorded during the Covid-19 pandemic confirms that MIX is an indispensable asset for Italian IP networks. Many expansions of ISPs and OTT have materialised in record time to meet the growing traffic demands. While they have never been a bottleneck, infrastructure improvements have been made to future proof the Italian Internet network.

SALOTTO 2020

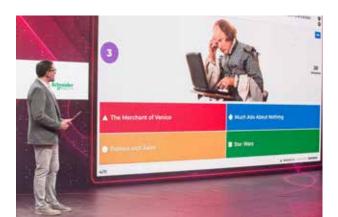
THE NET WON

The Salotto, the annual premier Italian event on Internet and technology organised by MIX was back on 1 December 2020. The fourteenth edition of the event most awaited by TLC operators in Italy took place virtually but as always in an informal setting of open discussion and reflection on Internet and technology issues. Participants ranged from technical managers, IT experts, and company leaders to technology enthusiasts, researchers, students, as well as industry journalists. During the keynote panel, discussions focused on digital transformation and recovery plans with high-level representatives from leading industry organisations, IT experts and government. Salotto 2020 also provided a perfect opportunity to celebrate twenty years of MIX.

The Salotto was held with a completely new format: a virtual experience, the event was broadcast live and the agenda was developed as an interactive schedule, accessible through an online portal.









The panel participants, moderated by Enrico Pagliarini of Radio24, was comprised of Franco Bassanini, President of Open Fiber; Vincenza Bruno Bossio, Deputy PD, Transport and TLC Commission; Luca Carabetta, Deputy M5S, Productive Activities Commission; Lisa Di Feliciantonio, Head, Media Relations & Public Affairs Fastweb; Marco Gay, President of Anitec-Assinform; Alessandro Morelli, League Deputy, Transport and TLC Commission; Stefano Quintarelli, Entrepreneur; Luca Spada, Founder and CEO of Eolo; and Alessandro Talotta, Vice President of MIX. In the early afternoon, Joy Marino, President of MIX and Geoff Huston, Chief



Scientist of APNIC, discussed the future of the Internet with active participation from Salotto participants.

Through the app, participants were able to interact with the speakers, ask questions and express their opinion on the various issues addressed. The day continued with a ceremony of awards to the protagonists of the first 20 years of MIX. A lively online quiz game gave the participants a chance to win an iPad. The day ended with a toast to celebrate 20 years of MIX with a special edition cocktail box #20MIX20 delivered to the homes of registered participants prior to the event.

Education MIX'COOL AT PISA INTERNET FESTIVAL

As part of its 20 years celebration, MIX has brought the MIX'COOL project to the tenth edition of the Pisa Internet Festival.

The IF2020 Scientific Committee has included the MIX educational initiative in the T-Tour schedule, the training proposals on the issues of the Internet and digital innovation aimed at young people.

MIX'COOL aims to tell young people what an IXP is and how it works and its role in the functioning of the Internet.

The project, aimed at secondary school students and teachers, in the pre-Covid era, would have included a visit to the headquarters of MIX in Milan. Instead, this special edition for IF2020, totally online, presented important news: the preview of the video "Journey to the center of the Net", a spectacular virtual tour of the MIX datacentre to discover what goes on "behind the scenes" of the Internet.

IN NUMBERS

680 students and teachers
34 classes
15 schools
+ Students of the Computer

Engineering Degree Course -Pisa University The students are shown that behind the daily use of the Internet there is a complex structure. Every moment hundreds of thousands of devices work on a global scale to build this great puzzle that is the Internet and thus allow us to use social networks and streaming services, to study, work and play remotely. MIX is highlighted as an important piece of that puzzle.

As always, Simone Morandini, MIX Service Development Manager and project contact person, guided the young people on this fascinating journey.



Performance THE MIX CUSTOMER SATISFACTION SURVEY RESULTS

Thanks to the support of Dstream Group consultancy, in October a customer satisfaction survey was conducted with a fantastic response rate with almost two thirds of the MIX customer base participating in the survey.

The customer respondents represented a full range of entities both from Italy and around the globe, in a variety of sectors covering small, medium and large customers.

The vast majority of survey participants found MIX to be good to excellent value for money and indicated high ratings for all of the services offered.

MIX believes that proper engagement with its customer base is essential. We were therefore extremely pleased to see that there was wide satisfaction in how MIX engages with its both in the usefulness and clarity of communication.

The survey included a Net Promoter Score (NPS) question in the survey and the outcome was a very pleasing score of 66. This is a strong indicator that customers are very satisfied with MIX. The highest accolades went to the MIX staff, quality

and reliability of services, and the importance of MIX in the Italian Internet landscape, especially considering the fact that it has the highest concentration of Internet operators in Italy. The survey clearly indicated leadership of MIX in the Italian IXP market.

Naturally, there are also areas for improvement and further development. The MIX team is commited to use the findings to improve its services to both current and new customers in 2021 and beyond to ensure MIX remains Italy's leading interconnection platform.



@mixexchange livello di marketing: God!

L' evento "salotto" sarà virtuale? E che problema c' è, i cocktail e gli stuzzichini te li mandiamo a casa... 🥴

CONTRACTOR OF STREET, STREET,

NIO



Grazie Nibble Network - stay connected! Inviaci un selfie o una foto con il nostro gadget, tagga MIX e aggiungi #20MIX20







20

#marketinglostalfacendobene





@morcomarletta

@MIX_exchange un ottimo Negroni per l'aperitivo della vigilia di Natale #20mix20 (poco alla volta finisco anche gli altri, tranquilli)

Translate Tweet





Valentina Cinelli @supervale71

Celebrating Mix' 20 years with fantastic new Mix crystal glass and Nio drink #20MIX20 #MIXSalotto





Quanto mi piace MIXare in salottol Grazie per questa splendida iniziativa MIX S.r.I. #20MIX20 #MIXsalotto

See translation





...

Marty Strong @martystronguk

Grazie ragazzi! @MIX_exchange Felice anniversario! #20MIX20 #MIXSalotto

Translate Tweet



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