

Customer Success Stories:

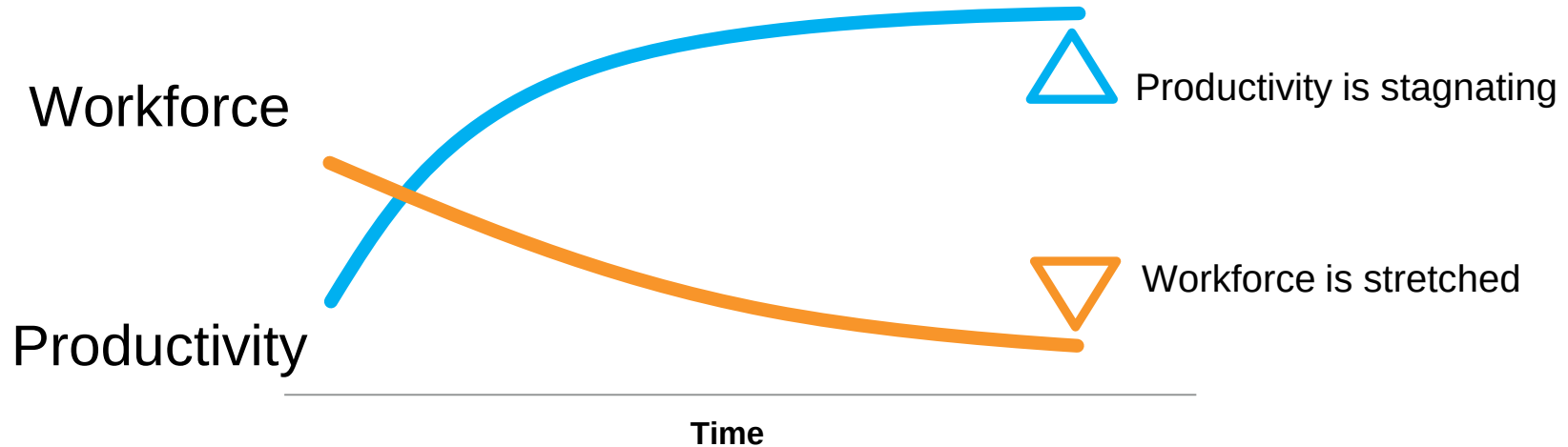
Plantweb IIoT Solutions on PI System as an Infrastructure

Presenter: Martijn van der Meer



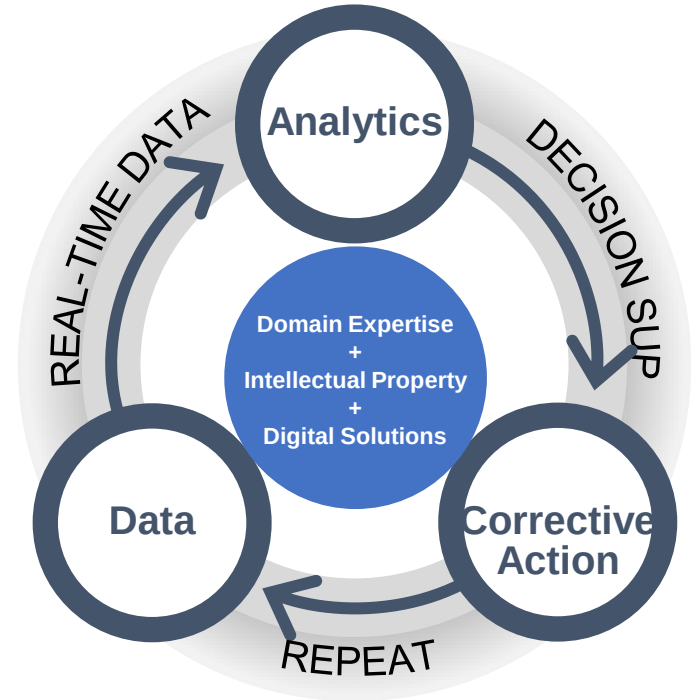
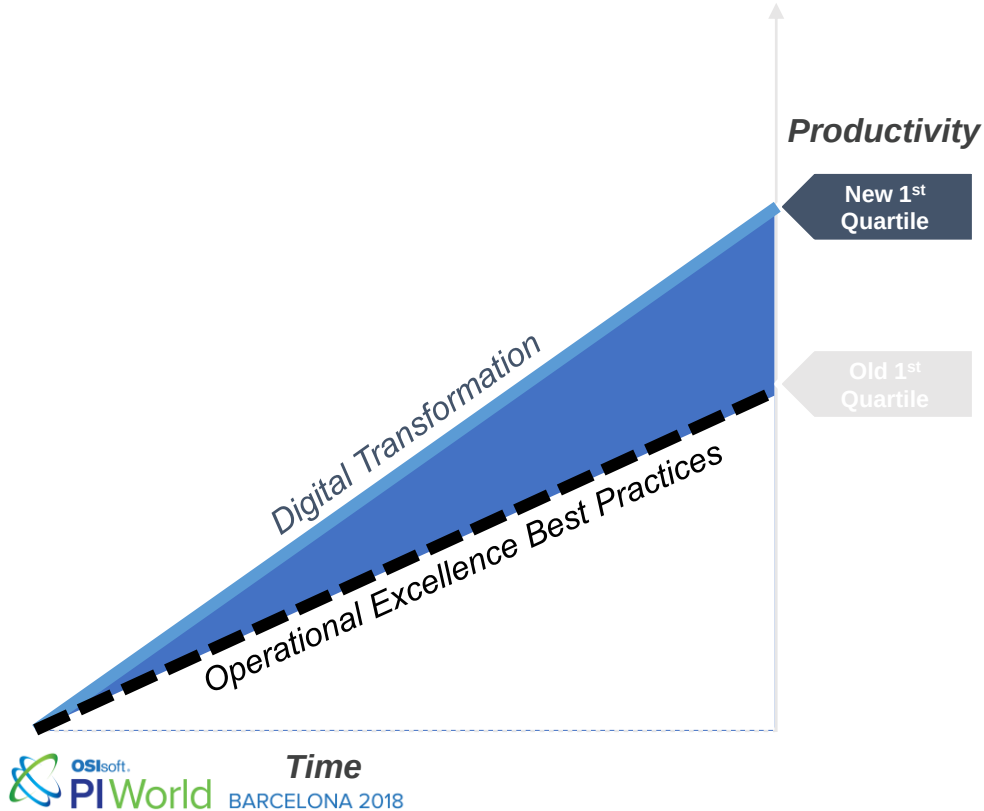
30 Years of Terrific Progress

Modern automation has made plants more efficient, reliable, safer...



...but the 'Efficiency Era' is reaching diminishing returns

Digital Performance Step Change



2017 Emerson At-A-Glance

FOUNDED

1890

HEADQUARTERS IN
ST. LOUIS, MO
USA

RECOGNITION

#139

2017
FORTUNE 500
AMERICA'S LARGEST
CORPORATIONS BY REVENUE

Top 50 Employers
WOMEN ENGINEERS MAGAZINE

America's Best Employers
FORBES MAGAZINE

 OSIsoft
PIWorld BARCELONA 2018

TWO BUSINESS PLATFORMS



WORLDWIDE

76,500
EMPLOYEES

200
MANUFACTURING
LOCATIONS

INNOVATION

EMERSON EMPLOYEES WERE AWARDED MORE THAN

2,100 PATENTS WORLDWIDE IN 2017

We  STEM

\$15.3
BILLION

IN GLOBAL SALES
FISCAL YEAR 2017

61
YEARS

CONSECUTIVE YEARS OF
INCREASED DIVIDENDS

NYSE:
EMR

#PIWorld


EMERSON

It All Starts with Data

Data

Connectivity

Analytics

Services

Pervasive Sensing: Innovative sensing strategies for cost-effective monitoring and optimization, enabling improved operational visibility to solve new problems

The Industry's Broadest Sensing Portfolio



CORRLOG ROXAR



NON-INTRUSIVE
CORROSION



VIBRATION



VALVE
POSITION



PARTIAL
DISCHARGE



NON-INTRUSIVE
TEMPERATURE



PRESSURE
GAUGE



PRESSURE



TEMPERATURE



RADAR LEVEL



LEVEL SWITCH



DISCRETE



FLOW TOTALIZER



PASSIVE
TEMPERATURE



ACOUSTIC



POWER MODULES



THUM ADAPTER



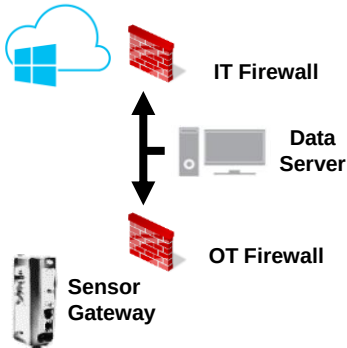
POWER METER

Safely Bridge OT and IT

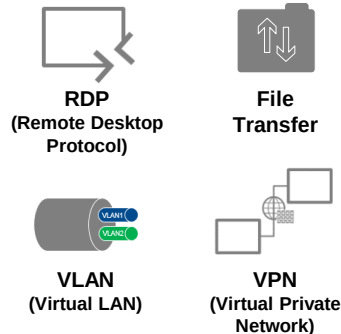


Secure First Mile: Connectivity architectures that facilitate the secure transfer of plant data to the appropriate applications, services, or mobile users – the right solution for the right application

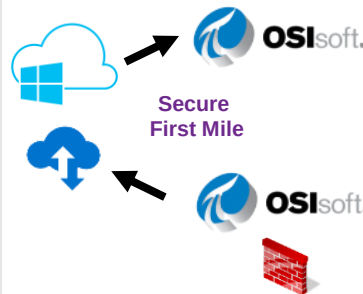
Traditional “Purdue Model”



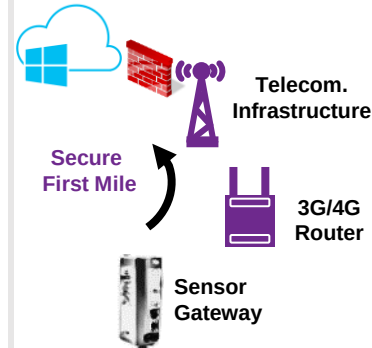
Offline Secure File Transfer



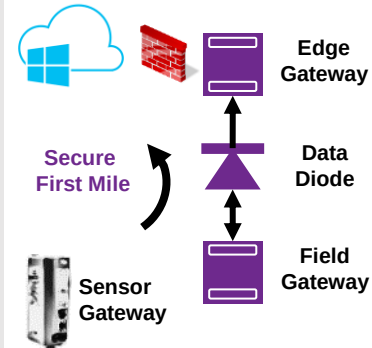
OSIsoft PI to PI PI Cloud Connect



Physically Independent Network



Direct Connect with Data Diode



Platforms & Software

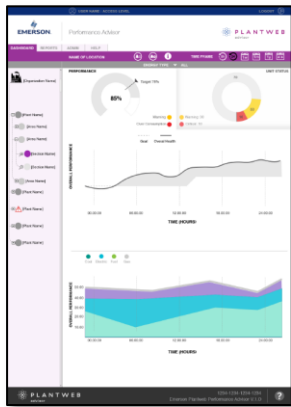
Data

Connectivity

Analytics

Services

Plantweb Advisor: Enterprise-wide analytics with customizable algorithms and displays



Rigorous analysis of Equipment
Performance & Efficiency



Plant, Unit, and
Equipment **Health** analytics

Comprehensive management of **Energy**
Consumption, Costs, and Emissions



Relevant Time **Asset Monitoring**



Abnormal Situation Identification



Manage Assets **Across Enterprise**



Configurable – Add New Assets



Leverage Existing PI Infrastructure



Understand Financial Impact
of how Equipment/Plant is Operating

Consulting & Implementation

Data

Connectivity

Analytics

Services

Digital Strategy: Enterprise-wide Deployment Methods for Operational Improvement

Local Experts

Automation Network



Centralized Expertise

On Premise or Cloud Hosted

Customer Center
Integrated Operations Center
Monitoring and Diagnostics Center

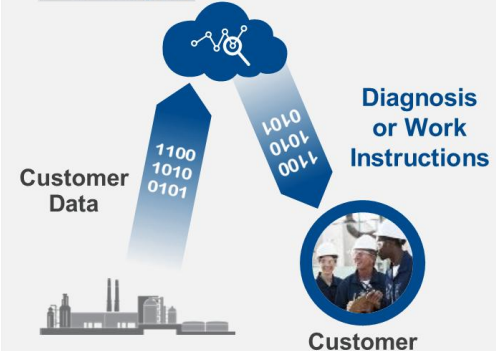


3rd Party Expert Services

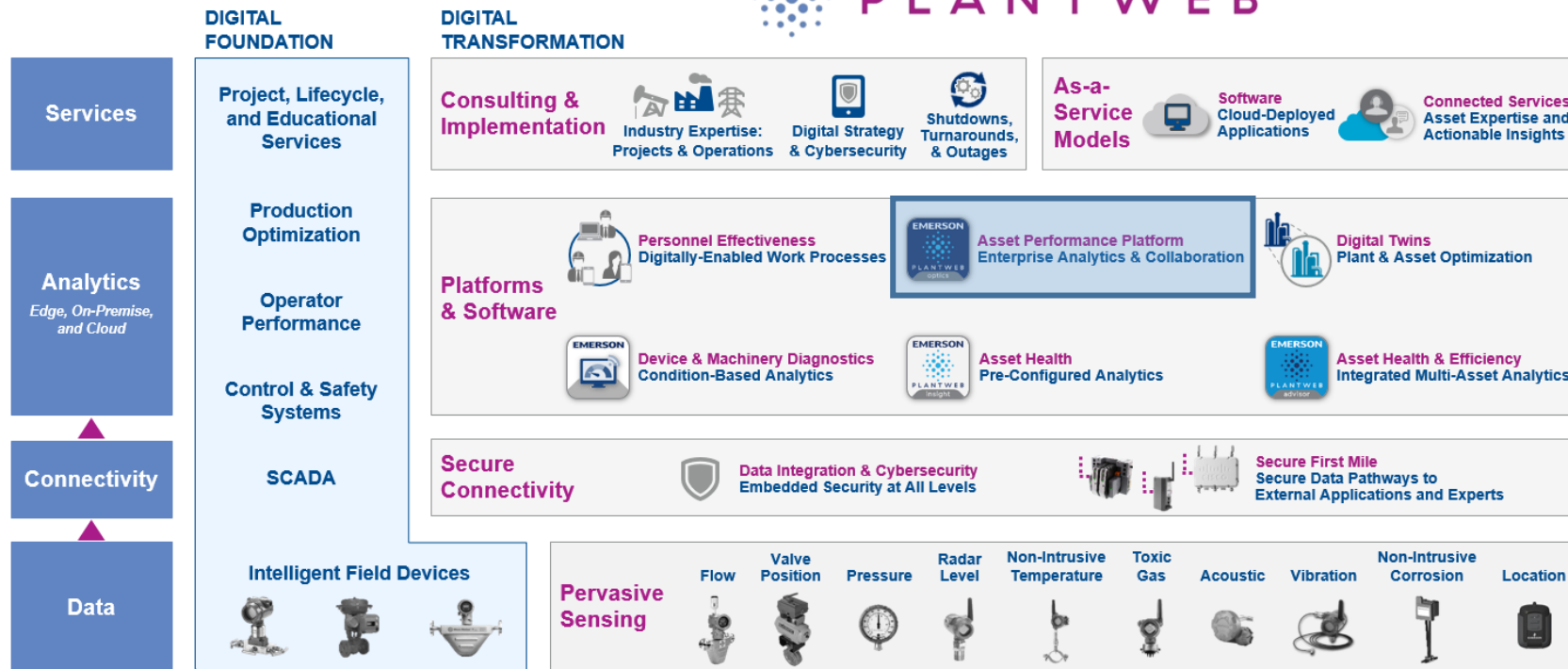
Cloud Hosted



3rd Party Monitoring and Analysis Platform



Our Plantweb Digital Ecosystem



Plantweb Advisor standard applications for all Common Equipment Types

Common Process Assets*

- Air Cooled Heat Exchanger
- Blower
- **Rotating Compressor**
- Cooling Tower
- **Heat Exchanger**
- **Pump**
- **Reciprocating Compressor**

Utility Assets**

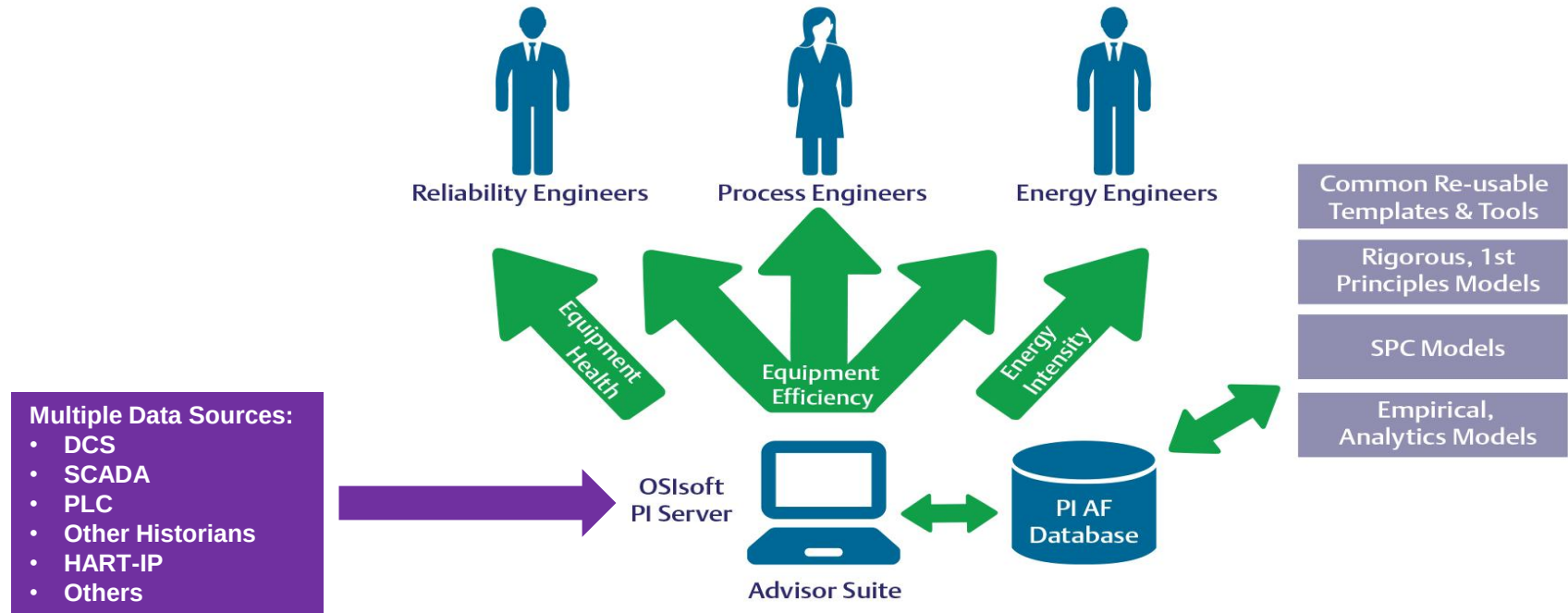
- Air Cooled Condenser
- Biomass Boiler
- **Boiler**
- Deaerator
- **Gas Turbine**
- Generator
- HRSG (Heat Recovery Steam Generator)
- Steam Distribution
- **Steam Turbine**
- Water Cooled Condenser

*Health and Performance Advisor

**Performance Advisor



Leveraging **Plantweb Advisor** on **PI System** to bring relevant Information and Insights to Key Stakeholders



WIN-PWA-EU

File Search View Go Tools Help

Database Query Date Back Check In Refresh New Element Search Elements

Elements

- Emerson
- Emerson
- Demo
- Environment
- Element Searches

Elements

Search

Group by: ☐ Category ☐ Template

Name	Description
Emerson	Emerson Plantweb Advisor Database

1 Element

Elements

- Event Frames
- Library
- Unit of Measure
- Contacts

10:29 14/09/2018

Suikerunie Sugar Factory Vierverlaten The Netherlands



CHALLENGE

Getting insight in the overall vacuum pump performance via an expandable platform

- Predicting Machine degradation to improve Mean Time Between Failure
- Operate the vacuum pumps in the best efficiency point

SOLUTION

Host a root cause analysis session, define the relevant conditions and select the supporting technology

- Wireless temperature, pressure and vibration sensors
- Wireless Hart Network
- PI AF & HART-IP Connector
- Plantweb Performance Advisor

RESULTS

Insight in the Pump Performance lead to operating in the best efficiency point

- Optimized Maintenance Cost
- Increased Production Capacity
- Increased Energy Savings
- ROI > 6 Months

MOL Gas Plant Algyő Hungary



CHALLENGE

Getting insight in the overall energy consumption via an expandable platform

- Easy Energy Reporting
- Define Energy Improvements

SOLUTION

Review relevant measurements, design KPI dashboards and select the supporting technology

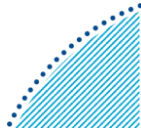
- PI AF & DeltaV Connector
- Plantweb Energy Advisor

RESULTS

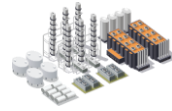
Insight in the Energy Consumption to drive the Energy improvement programs

- Optimized Maintenance Cost
- Increased Production Capacity
- Increased Energy Savings
- ROI > 2 year

Summary of Emerson's Digitization Beliefs



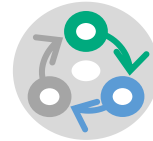
The **opportunity for transformational results is real**, but the technology is mostly evolution not revolution



Solutions **must use existing infrastructure** where possible and meet existing security practices



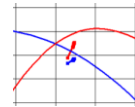
Work process change and people's resistance to it **is the biggest challenge** to broad deployment and sustainability



You need to know the problem you are addressing – **just running analytics at data looking for insights doesn't work**



Applications and programs **must have clearly defined ROI**



Model with rules, first principles, and FMEAs where you can; let machine learning fill the gaps



Even a big infrastructure is made of many small parts; **you can start small and scale up**

Thank you



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Emerson Automation Solutions

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Questions?

Please wait for
the **microphone**

State your
name & company



Please rate this session in the mobile app!



THANK YOU

OSIsoft. PIWorld

謝謝 KEA LEBONA
TAPADH LEIBH 고맙습니다
BAЯPЛAЛAА MISAOTRA ANAO
DZIĘKUJĘ CI NGIYABONGA TEŞEKKÜR EDERIM GRACIES
OBRIGADO شڪرا SALAMAT
DANKON TANK TAPADH LEAT
DANKIE TERIMA KASIH
KÖSZÖNÖM
СПАСИБО
PAKMET CIZGE
GO RAIBH MAITH AGAT
БЛАГОДАРЯ GRACIAS
ТИ БЛАГОДАРАМ
MAHADSANID
TAK DANKE
RAHMAT
HATUR NUHUN
MERCİ
CẢM ƠN BẠN
WAZVIITA
FALEMINDERIT
DANK JE
AČIŮ SALAMAT MAHALO IĀ 'OE TAKK SKALDU HA
GRAZZI PAKKA PĒR
PAXMAT CAĞA
EΥΧΑΡΙΣΤΩ GRATIAS TIBI
DI OU MÈSI
ĐAKUJEM
MATUR NUWUN
UA TSAUG RAU KOJ
ТИ БЛАГОДАРАМ
СИПОС
HVALA ХВАЛА ВАМ
TEŞEKKÜR EDERIM
GRAZIE
HVALA
MULTUMESC
FAAFETAİ
ESKERRIK ASKO
HVALA