

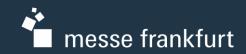


# 100% digital workflow: dal concept virtuale alla linea produttiva

## **Bosch Rexroth**

Flavio Ronzoni Product Manager



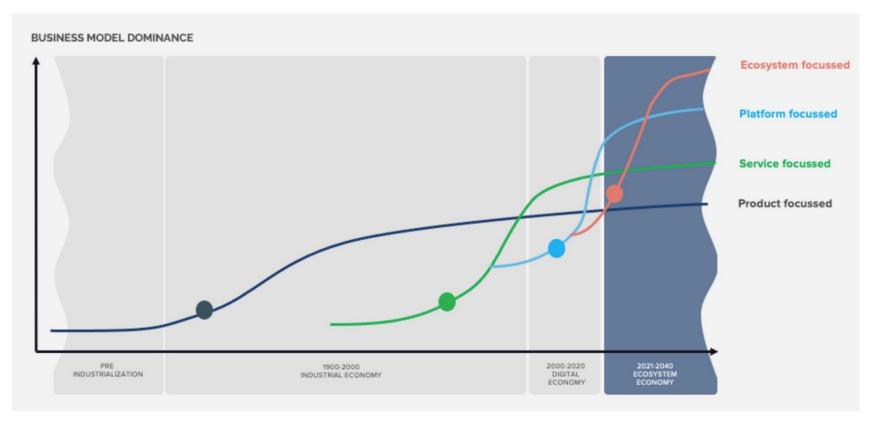


## **Background concept**

#### Dal prodotto all'ecosistema

- Interoperabilità ha un ruolo chiave
- La differenziazione è valore aggiunto
  - di servizi
  - di competenze e risorse

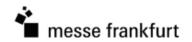
Che ruolo giocano i servizi digitali ?



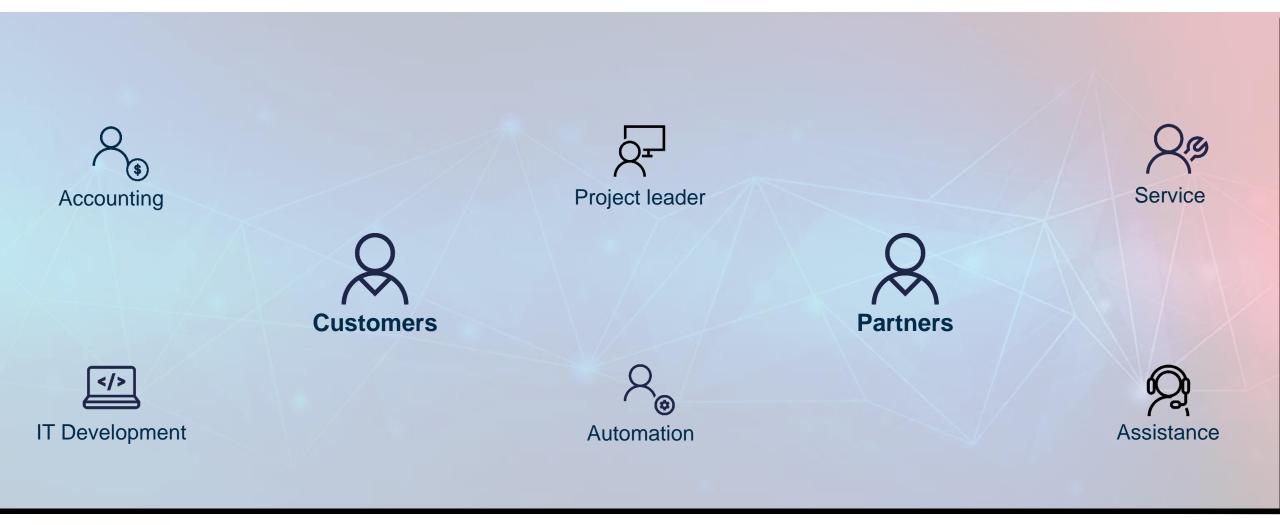
Source: Platform Innovation Kit





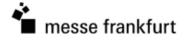


## Logica collaborativa









## Logica collaborativa

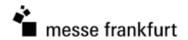
Cosa accade a declinare la logica collaborativa



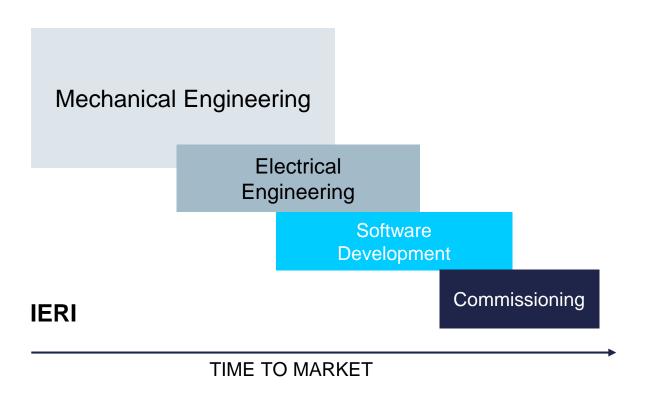
In un ecosistema industriale?

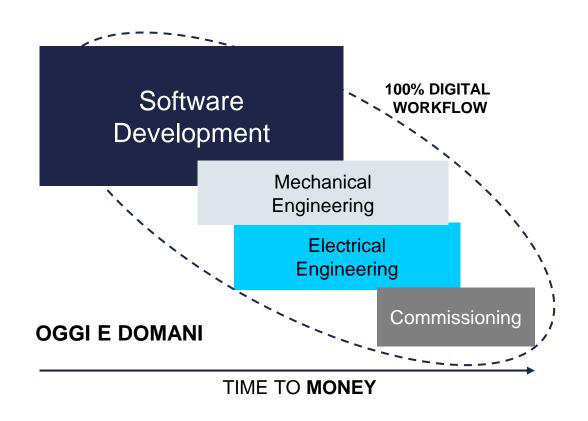






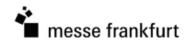
## 100% digital workflow - Prospettive di sviluppo



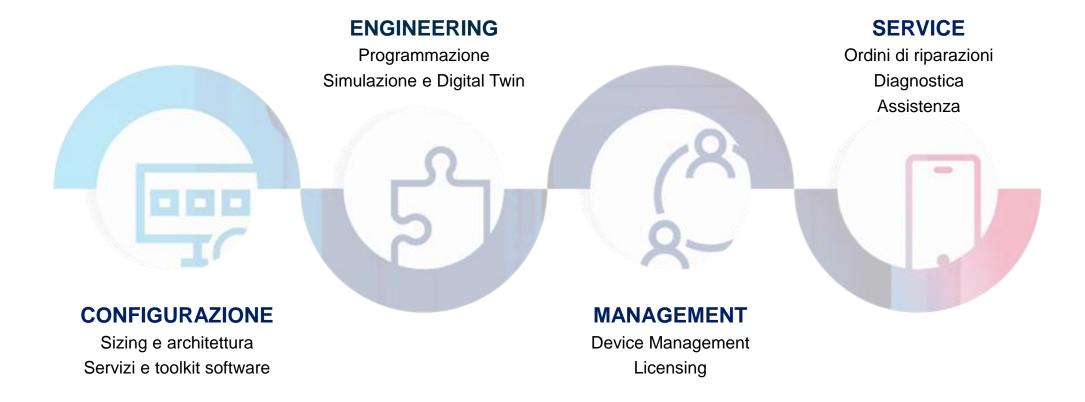








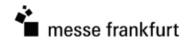
## 100% digital workflow – Life cycle



Prototipazione Retrofit







## Configurazione



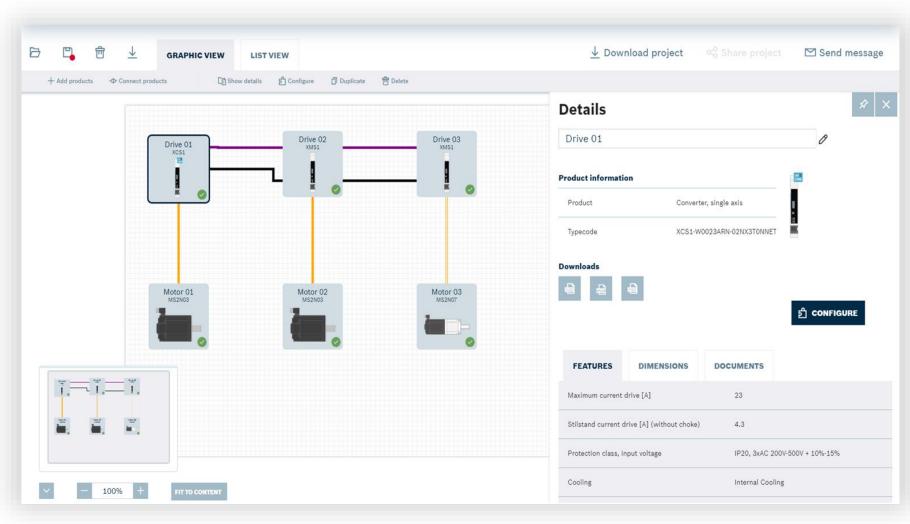
#### Sizing e architettura

Documentazione completa UX troubleshoot e cross dependencies Sizing tool integrati



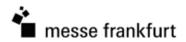
## Servizi e toolkit software

Online software store Quotazioni e ordini automatizzati







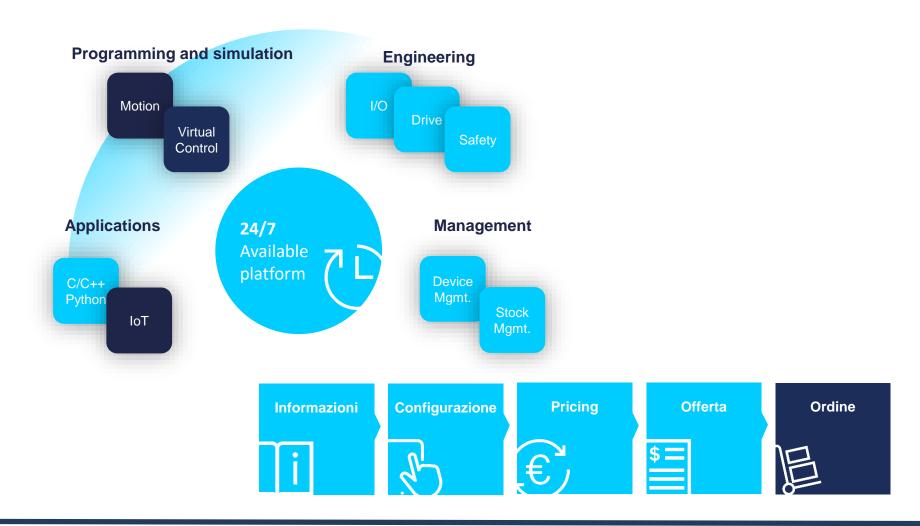


## Configurazione



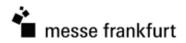
## Servizi e toolkit software

Online software store Quotazioni e ordini automatizzati









## **Engineering**



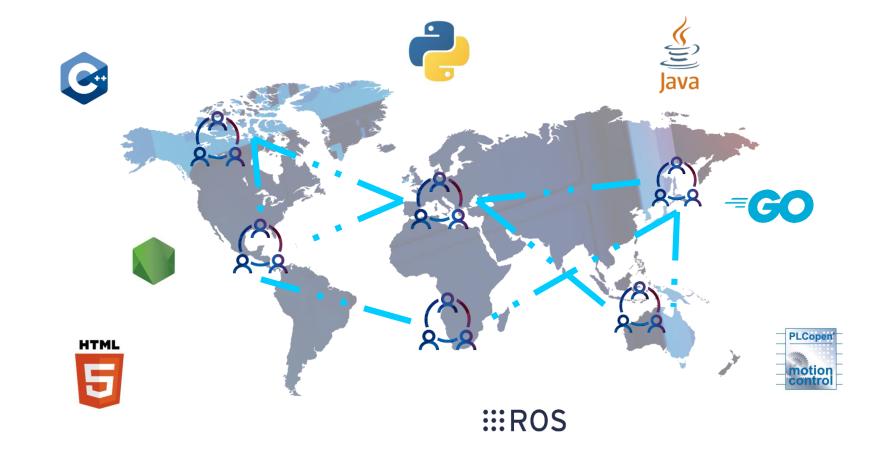
### **Programmazione**

Programmazione flessibile Online Community



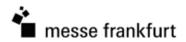
Simulazione e Digital Twin

Configurazione Virtual Commissioning









## **Engineering**



#### Programmazione

Programmazione flessibile Online Community



### Simulazione e Digital Twin

Configurazione Virtual Commissioning

#### Virtualizzazione

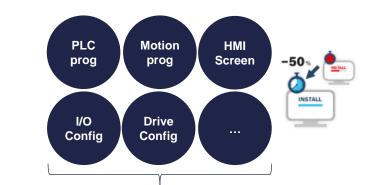
Utilizzo dei modelli di simulazione

#### Ottimizzazione

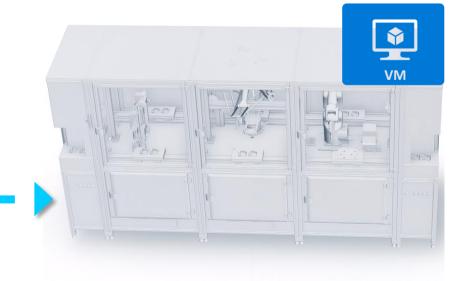
Ottimizzazione orientata alle performance

## Virtual Commissioning

Parametrizzazione in assenza di hardware

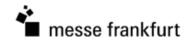


{ REST:API }









## Management



### Device Management

Device Management Diagnostica Licensing



#### **Devices**



#### Gestione

Organizzazione dei dispositivi



#### **Accessibilità**

Accesso remoto e manutenzione



#### **Aggiornabilità**

Aggiornamenti, backup e restore



### Licensing



#### Digitale

Processo digitale e semplificato



#### **Accessibilità**

Gestione capillare rispetto agli utenti

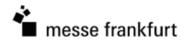


#### Flessibilità

Business flessibili in relazione alle licenze







### **Service**



#### **Service and repair**

Ricambi Ordini di riparazione Vita utile dei componenti



#### Ricambi

Identificazione e ordine di ricambi



#### Riparazioni

Avvio di un ordine di riparazione



#### **Assistenza**

Disponibilità 24/7



#### **Documentazione**

Accesso diretto alla documentazione



#### **Diagnostica online**

Diagnostica online per la manutenzione preventiva

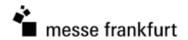


## Registrazione prodotti

Disponibilità dei dati di macchina







## **Summary**

## 100% DIGITAL WORKFLOW

Efficienza



Differenziazione e competenze



Apertura a nuovi business

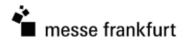


Continuous delivery









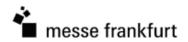
#### Domande

Si è parlato di servizi digitali declinati nel contesto industriale, oltre ai benefici per i clienti, che vantaggi ne possono trarre invece i partner inseriti nell'ecosistema?

Quanto incide il progressivo disaccoppiamento tra lo sviluppo software rispetto ad un dispositivo hardware di controllo sul business di un vostro cliente?











#### **A COMPLETE AUTOMATION SOLUTION**

ctrIX AUTOMATION provides all the elements required for complete automation solutions. The system is extremely scalable and covers the requirements for practically all applications.

The system functions complement each other perfectly and can also be extended by apps, third-party hardware and software thanks to the absolute openness of the system

Offering the best possible networking capability, the automation system can also be connected with just about all relevant automation interfaces and protocols, and offers complete freedom in the choice of development environment and programming language.

#### Systematically flexible:

- Maximum scalability and extensibility
- ▶ Perfectly harmonized system functions
- ► Virtually all common Interfaces and programming languages supported



ctrlx IOT Integrated & Secure



ctrix PLC IEC & non-IEC



ctrix WORKS Engineering & Simulation



ctrix MOTION Motion, Robotics & CNC



SafeLogic & SafeMotion



ctrlx I/O EtherCAT & 30 others Drives & Motors



ctrlx IPC Box & Panel

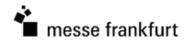


Hardware & Software

ctrlX AUTOMATION website







#### ctrlX WORKS

#### The software and engineering toolbox

ctrIX WORKS is the central nervous system of the platform and reduces the engineering time for new concepts by 30 to 50%. In addition to classic PLC languages pursuant to IEC 61131, PLCopen, and G-Code, developers can implement functions without restriction in the form of apps or open source software. Individual functions can be installed and removed without any repercussions for existing apps and also tested virtually. The central ctrlX Data Layer guarantees continual access to all real-time and non-real time data of the installed apps. It is immaterial in this sense whether the apps are installed as runtime apps on a ctrlX CORE or are executed as engineering apps and services on a PC, smart device, or in the cloud.

ctrIX WORKS already includes an extensive portfolio of high-performance apps for typical tasks in the area of factory automation. In addition, users can develop their own programs in any programming language or integrate third-party apps.

#### Highlights

#### More productivity

- ▶ Free choice of programming language
- Limitless functionality that can be implemented with ease
- Virtual testing without hardware
- Simple integration of own and third-party software

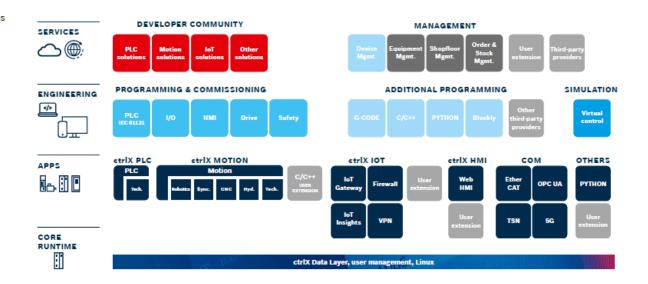
#### Less engineering

- ▶ Web-based engineering
- Pre-programmed functions and intuitive programming tools
- Developer communities and services



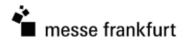
#### At a glance:

- Engineering is up to 50% faster
- Rapid adaptation to changes on the market













## GRAZIE PER L'ATTENZIONE!



