

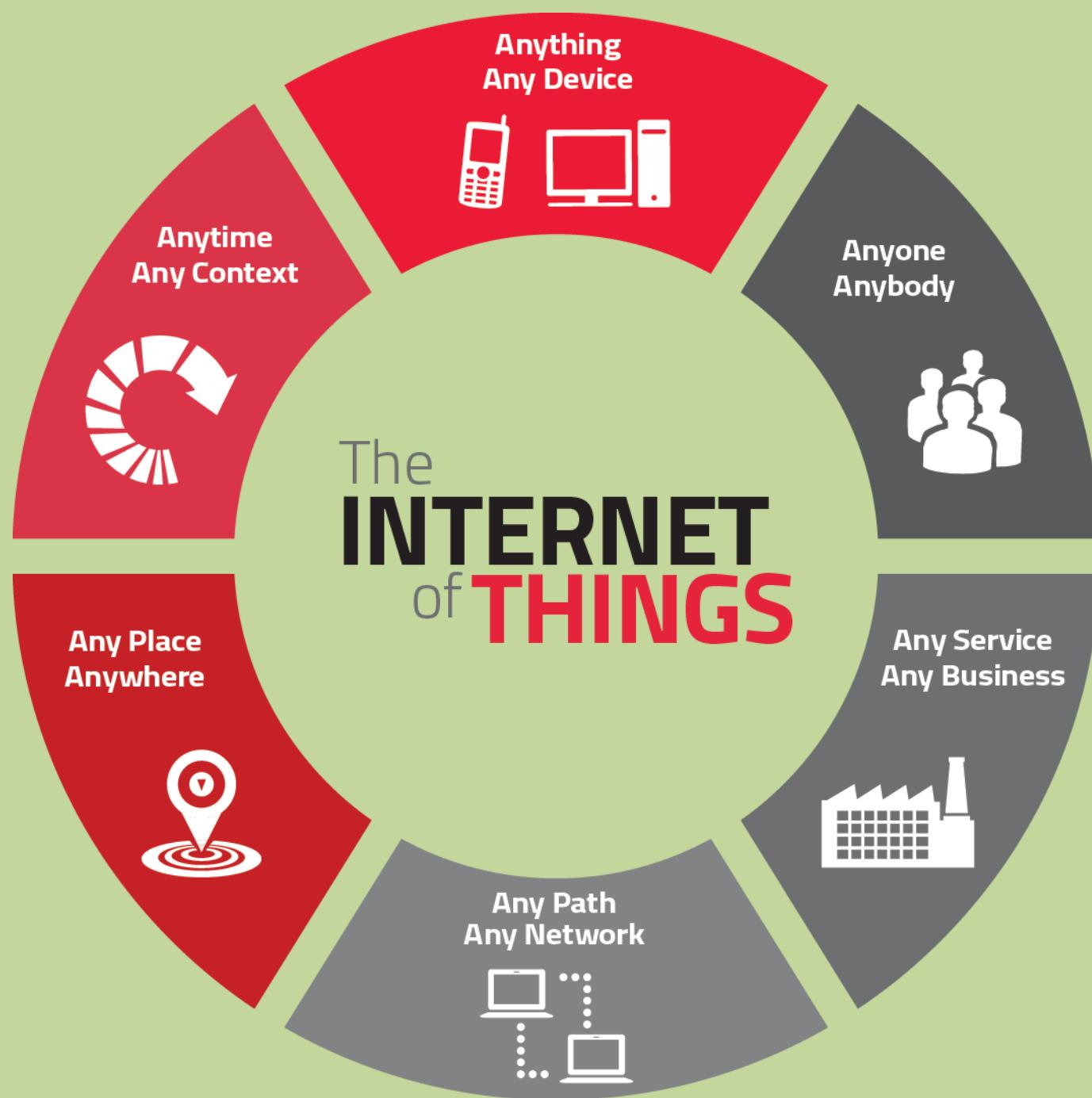


مهدی
ناصری

mnasseri.ir

استارتاپ‌ها چگونه با
اینترنت اشیا
شهر هوشمند خواهند ساخت؟





تا به امروز تلویزیون‌ها، خودروها، خانه‌ها،
تجهیزات مختلف و اشیای بسیاری را داریم که
به اینترنت متصل شده‌اند.

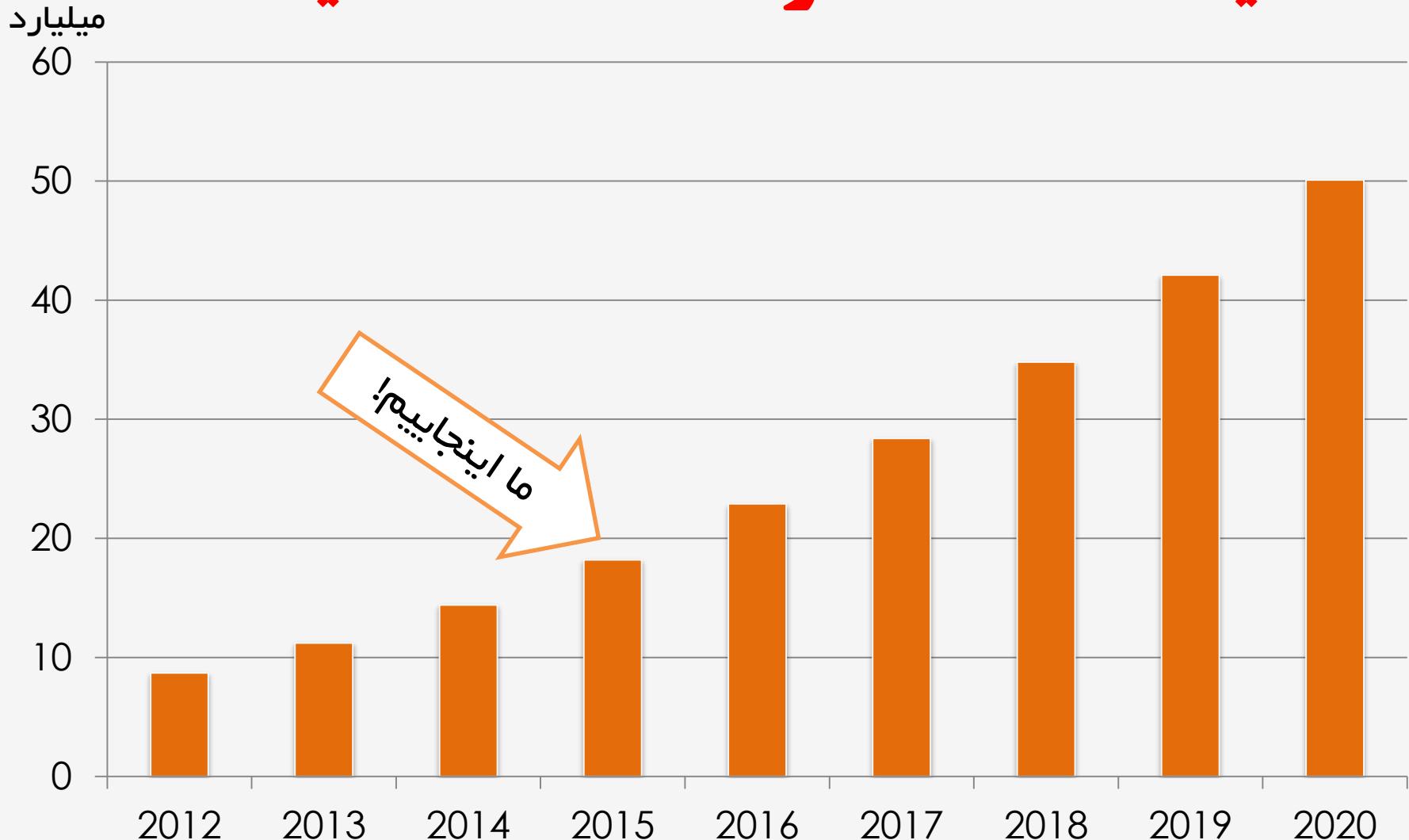
این اشیا، می‌توانند سیستم‌ها را برای ما خودکار کرده، ارتباطات ما را تسهیل کنند و داده‌های مفیدی را برای ما جمع‌آوری نمایند.

از این رو، اگر تا به حال در این باره چیزی نشنیده باشید، باید بدانید که این نتیجه نتیجت اشیایی به وقوع پیوسته است.

و حجم ارتباطات
اینترنت اشیاء (IoT)
در حد انفجار است.

باید نگاهی به آماده سازی...
ار بیندازیم

کل ارتباطات ایمنیت اشپیزا



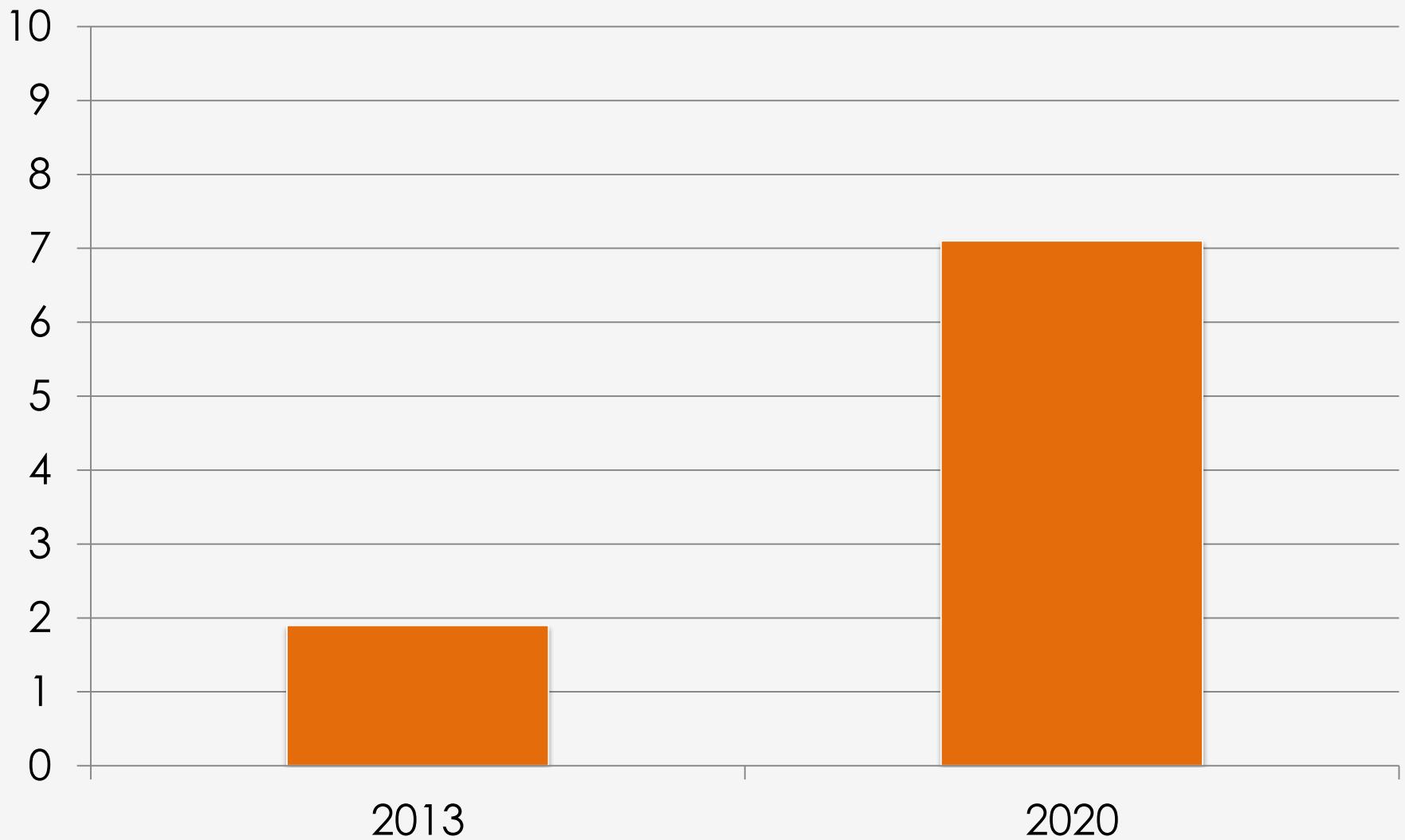
Source: Cisco.

فایده این همه اشیای به هم
متصل چیست؟

ارزش این فنون‌آوری احتمالاً بسیار بیشتر از آن چیزی است که شما فکر می‌کنید.

حجم بازار اینترنت اشیا

(بر مبنای تریلیون دلار)



Source: IDC.

حجم بالقوه اين بازار بسیار بالاست. چون مهمترین کارکرد اینترنیت اشیای افزایش کارایی در کنار کاربردهای نوین است.

این فناوری‌ها تقریباً در تمام عرصه‌های زندگی روزانه ما رسوخ خواهند کرد؛ بهداشت، حمل و نقل، آموزش، ابزارها و...

حتی بدینانه‌ترین پیش‌بینی‌ها هم حاکی از تاثیر بسیار فراگیر آیندترنمت اشیای در آینده‌ای نزدیک بر زندگی ما دارد.

و ما تازه شروع کرده‌ایم...



اینترنت اشیا

مزایای بسیار زیادی برای
انسان‌ها خواهد داشت.

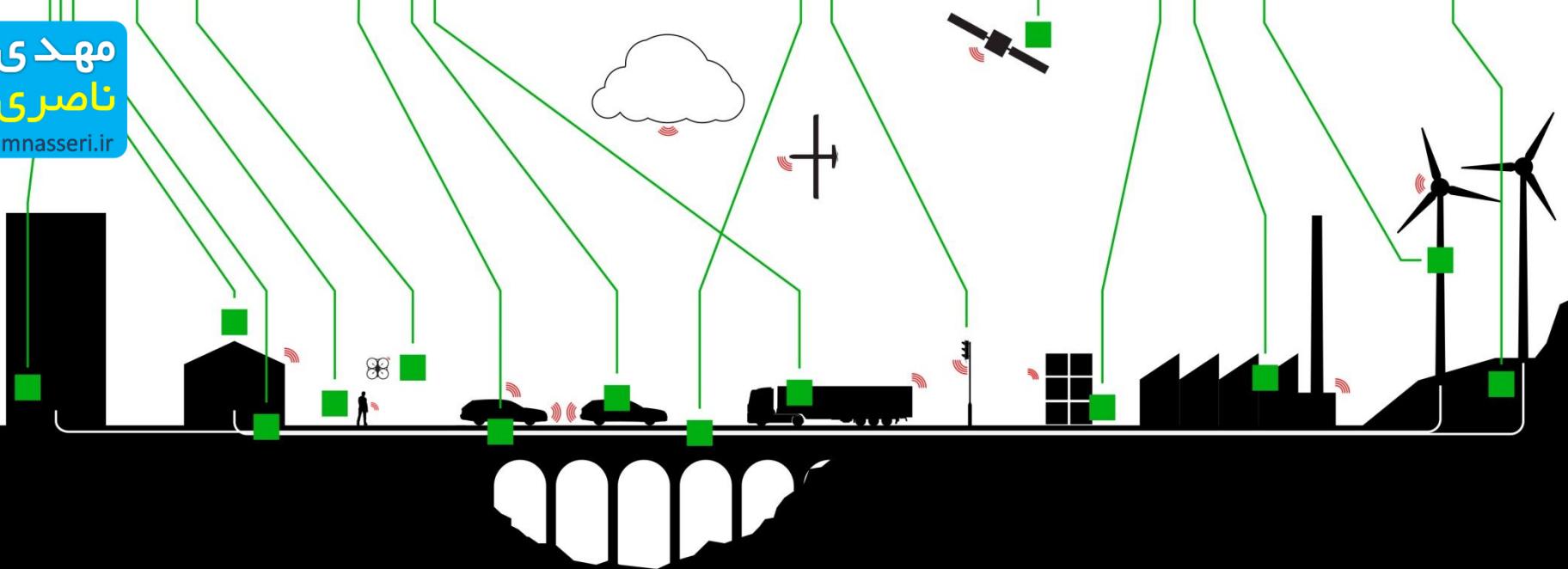
ما خواهیم توانست ...

ماشین‌ها، خانه‌ها، ابزارهای پوشیدنی و ...
را از طریق اینترنت به هم متصل کنیم.

ما خواهیم توانست...

ماشین‌ها، خانه‌ها، ابزارهای پوشیدنی و...
را از طریق اینترنت به هم متصل کنیم.

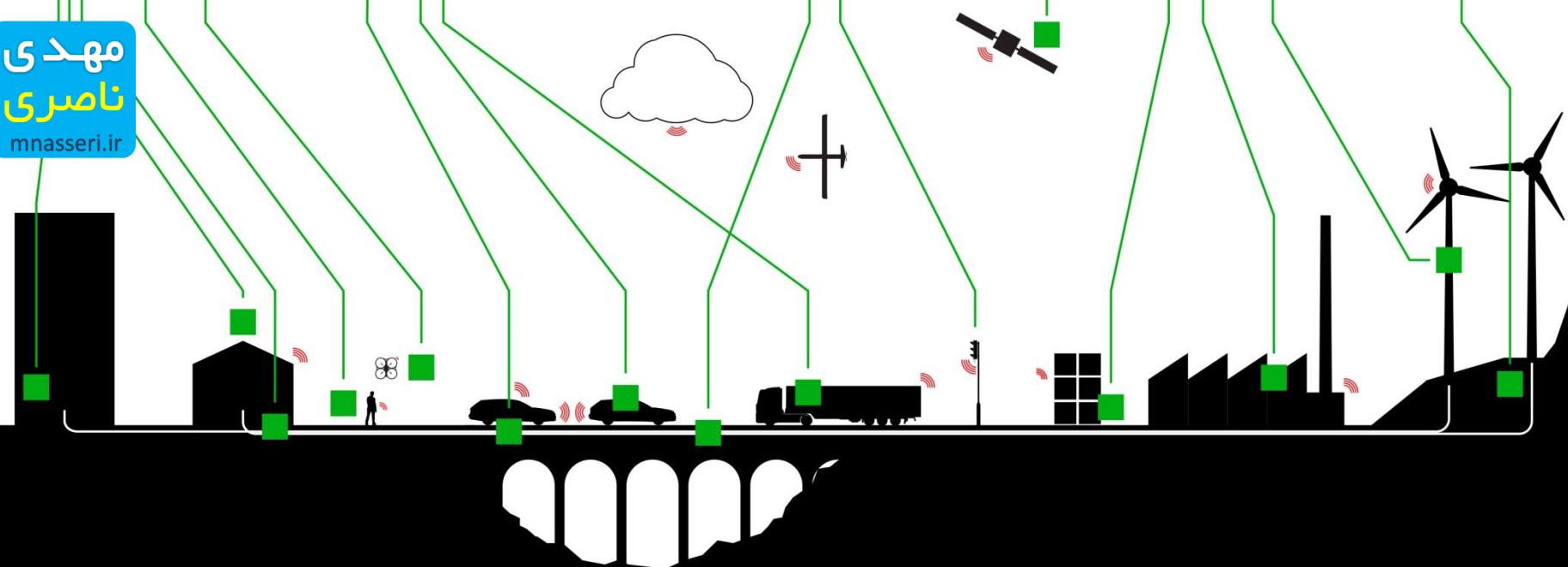
تا بسیاری از کارهای مان به صورت **خودکار** انجام شده
و ثبت داده‌های ضروری تسهیل شود.



ولی این تنها مشتریان و مردم عادی نیستند که از

اینترنت اشیا

سود خواهند برداشت....



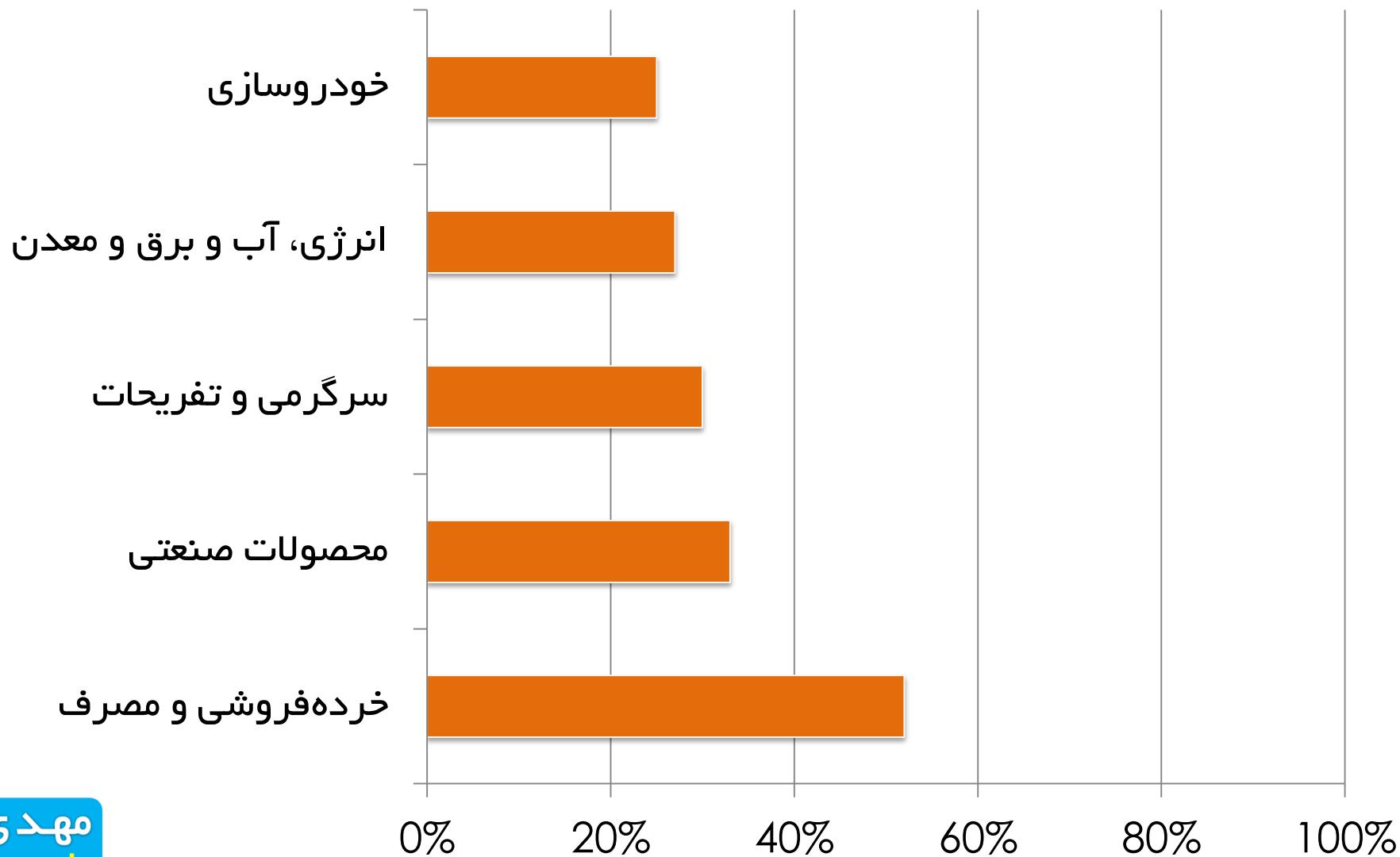
با استفاده از

اینترنت اشیا

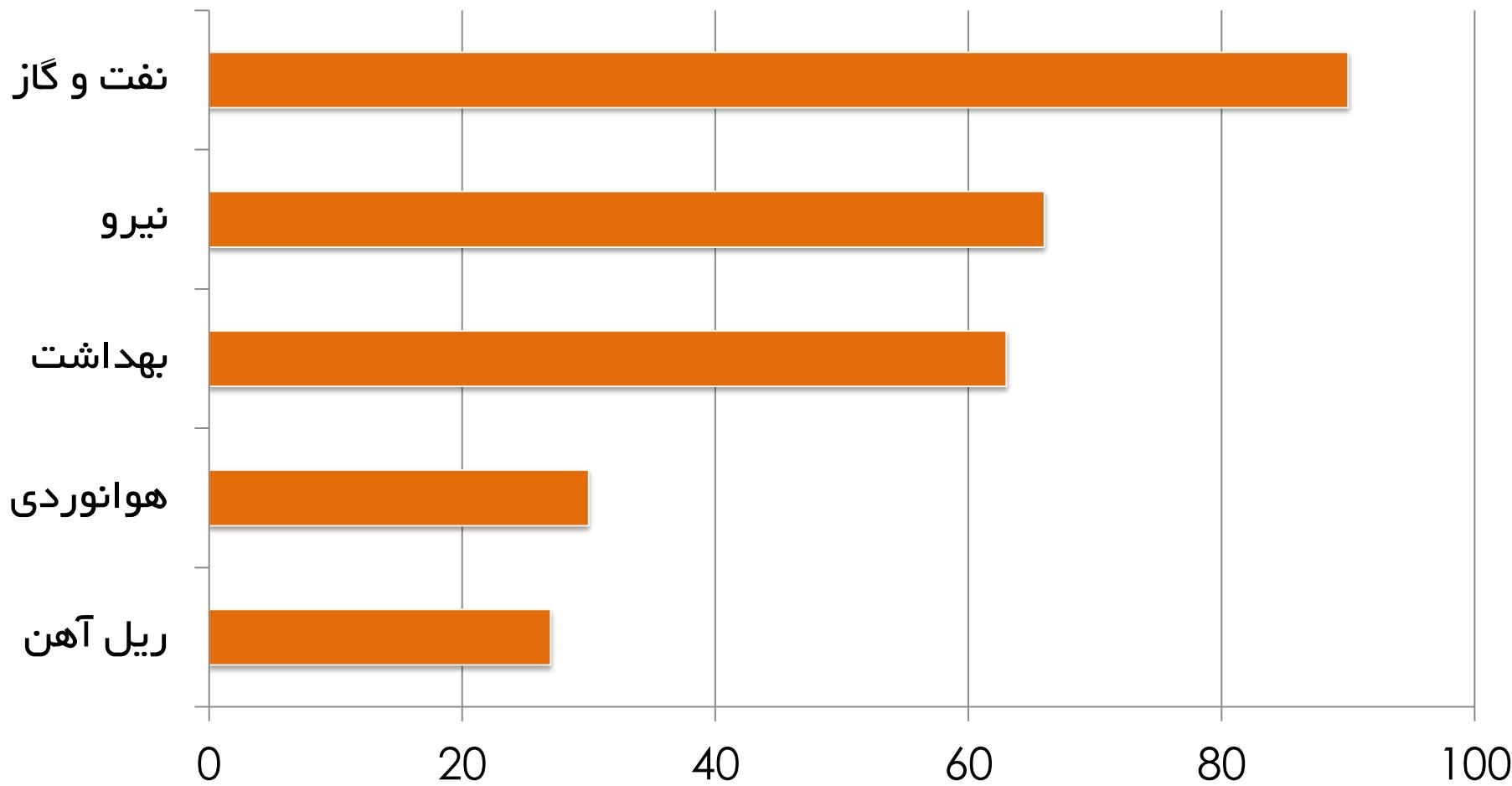
مزایا و امکانات جدید بسیاری در انتظار

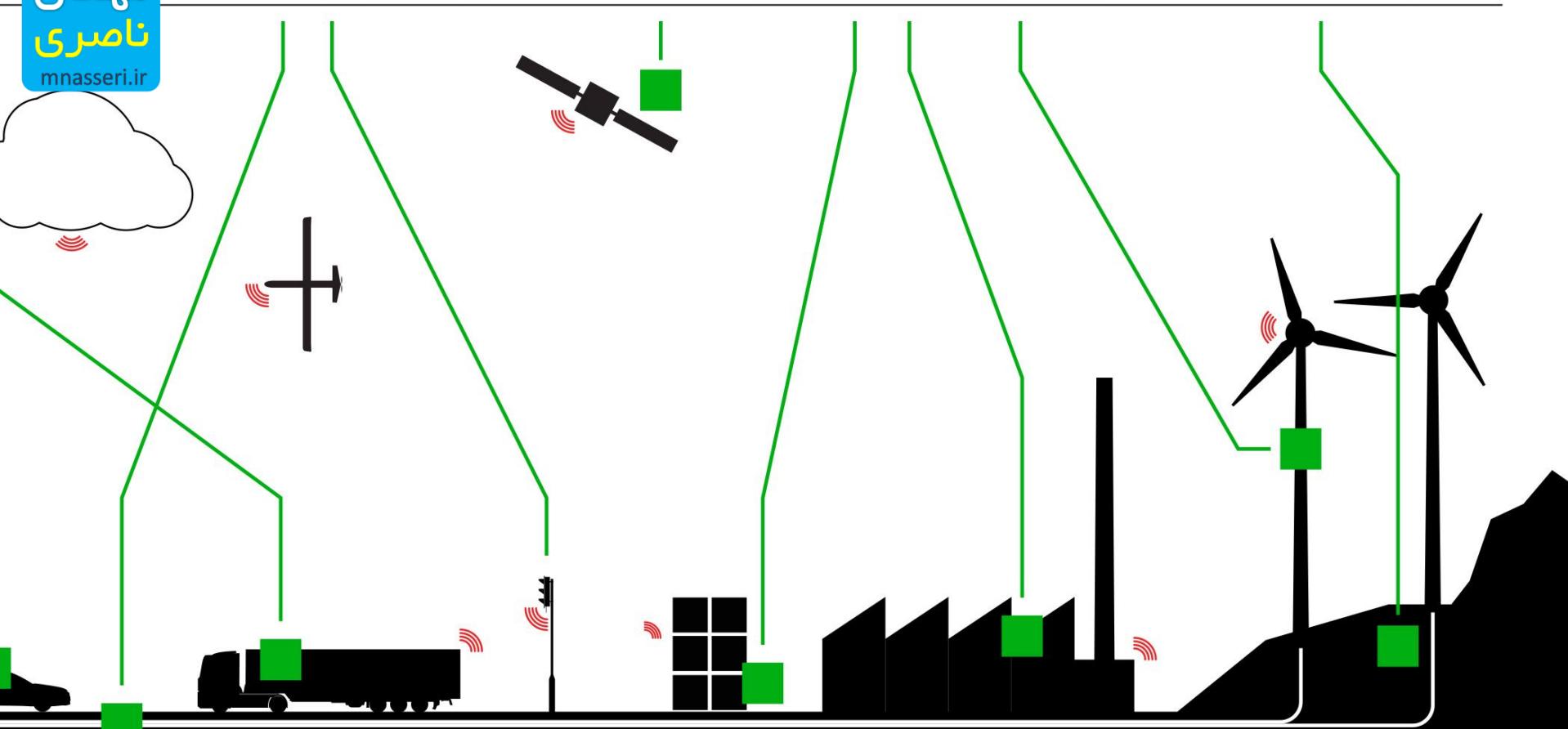
شرکت‌ها و کسب و کارهاست

صنایعی که در حال سرمایه‌گذاری روی حسگرهای اینترنت اشیا برای کسب و کارهای خود هستند.



صرفه‌جویی حاصل از کارایی اینترنت صنعتی (میلیارد دلار)





جنرال الکتریک می‌گوید این صرفه‌جویی ناشی از فناوری‌های مورد استفاده برای بهبود موارد زیر است:

**افزایش قابلیت اطمینان
تدام کارایی،
امنیت و اجرای بهتر دارایی‌ها**



و سیسکو نیز موافق چنین تاثیری است. این شرکت می‌گوید

یکی از محركهای کلیدی برای توسعه **اینترنت اشیا**

کاهش هزینه‌هاست.



سیسکو تخمین می‌زند در یک دهه آینده حدود ۱۹ تریلیون دلار از فواید **اینترنت اشیا** و کاهش هزینه‌های ناشی از استفاده این فناوری‌ها در صنایع مختلف عاید خواهد شد.

این در حالی است که متسفانه



۱۷۳

شرکت‌ها همچو
سرمایه‌گذاری در
حوزه اینترنت اشیا
انجام نداده‌اند.
(در آمریکا)

برنامه کاربردی مبتنی بر اینترنت اشیا در یک زندگی هوشمند

91





SMART CITIES

- 01 Smart Parking**
Monitoring of parking spaces availability in the city.
 - 02 Structural health**
Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.
 - 03 Noise Urban Maps**
Sound monitoring in bar areas and centric zones in real time.
 - 04 Smartphones Detection**
Detect iPhone and Android devices and in general any device which works with Wifi or Bluetooth interfaces.
 - 05 Electromagnetic Field Levels**
Measurement of the energy radiated by cell stations and WiFi routers.
 - 06 Traffic Congestion**
Monitoring of vehicles and pedestrian levels to optimize driving and walking routes.
 - 07 Smart Lighting**
Intelligent and weather adaptive lighting in street lights.
- 

Smart City technology investment will total \$108 billion by 2020.

Pike Research

SMART CITIES

08

Waste management

Detection of rubbish levels in containers to optimize the trash collection routes.

09

Smart Roads

Intelligent Highways with warning messages and diversions according to climate conditions and unexpected events like accidents or traffic jams.

Smart City technology investment will total \$108 billion by 2020.

Pike Research





SMART ENVIRONMENT

10 Forest Fire Detection

Monitoring of combustion gases and preemptive fire conditions to define alert zones.

11 Air Pollution

Control of CO₂ emissions of factories, pollution emitted by cars and toxic gases generated in farms.

12 Snow Level Monitoring

Snow level measurement to know in real time the quality of ski tracks and allow security corps avalanche prevention.

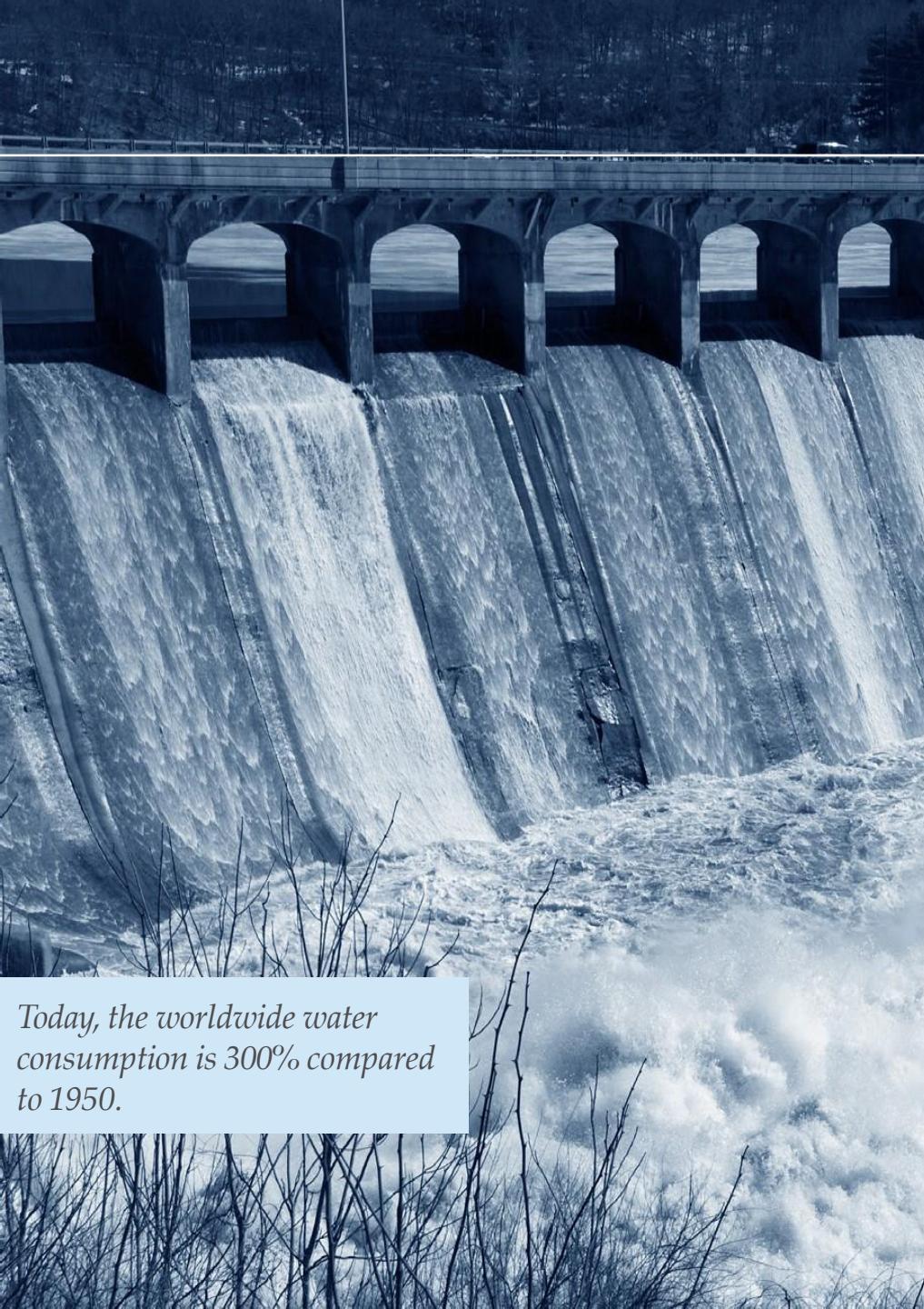
13 Earthquake Early Detection

Distributed control in specific places of tremors.

14 Landslide and Avalanche Prevention

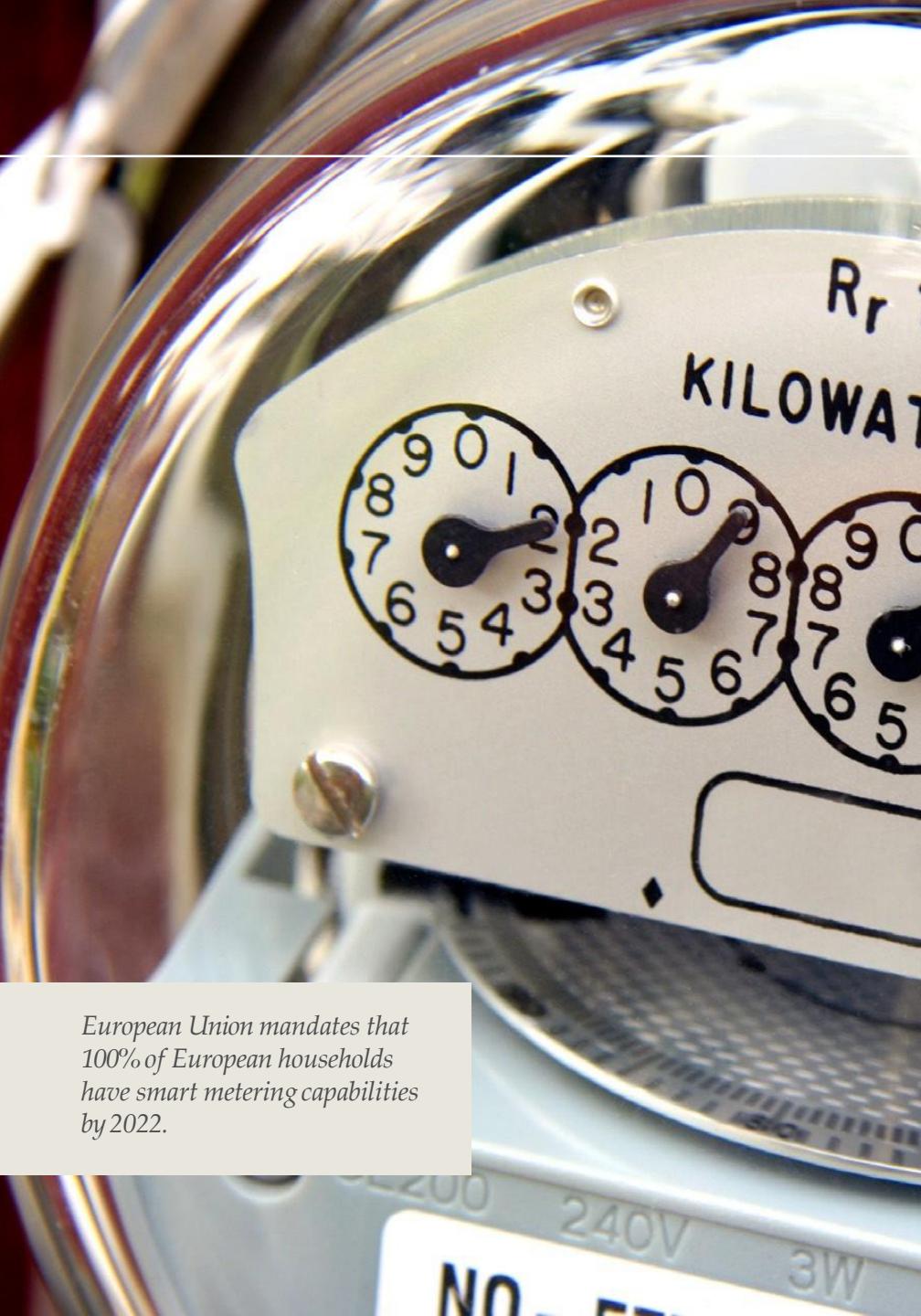
Monitoring of soil moisture, vibrations and earth density to detect dangerous patterns in land conditions.

More than 100,000 wildfires clear 4 million to 5 million acres (1.6 - 2 million ha) of land only in the USA.



SMART WATER

- 15 Portable water monitoring**
Monitor the quality of tap water in cities.
- 16 Chemical leakage detection in rivers**
Detect leakages and wastes of factories in rivers.
- 17 Swimming pool remote measurement**
Control remotely the swimming pool conditions.
- 18 Pollution levels in the sea**
Control realtime leakages and wastes in the sea.
- 19 Water Leakages**
Detection of liquid presence outside tanks and pressure variations along pipes.
- 20 River Floods**
Monitoring of water level variations in rivers, dams and reservoirs.



SMART METERING

- 21 Smart Grid**
Energy consumption monitoring and management.
- 22 Tank Level**
Monitoring of water, oil and gas levels in storage tanks and cisterns.
- 23 Photovoltaic Installations**
Monitoring and optimization of performance in solar energy plants.
- 24 Water Flow**
Measurement of water pressure in water transportation systems.
- 25 Silos Stock Calculation**
Measurement of emptiness level and weight of the goods.

European Union mandates that 100% of European households have smart metering capabilities by 2022.



SECURITY & EMERGENCIES

26 Perimeter Access Control
Access control to restricted areas and detection of people in non-authorized areas.

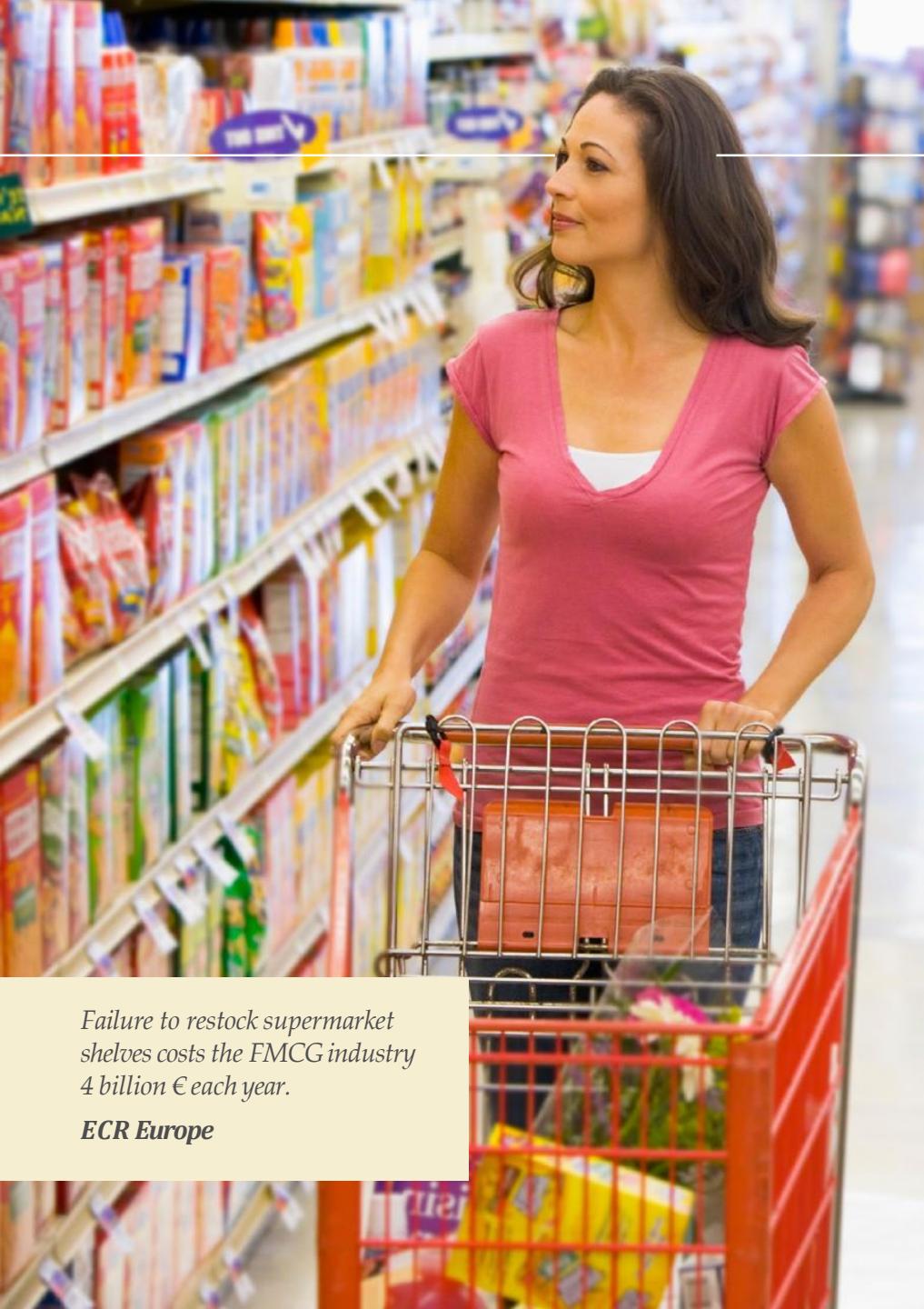
27 Liquid Presence
Liquid detection in data centers, warehouses and sensitive building grounds to prevent break downs and corrosion.

28 Radiation Levels
Distributed measurement of radiation levels in nuclear power stations surroundings to generate leakage alerts.

29 Explosive and Hazardous Gases
Detection of gas levels and leakages in industrial environments, surroundings of chemical factories and inside mines.

Nuclear energy covers 16% of the planet energy needs.

RETAIL



Failure to restock supermarket shelves costs the FMCG industry 4 billion € each year.

ECR Europe

- 30 Supply Chain Control**
Monitoring of storage conditions along the supply chain and product tracking for traceability purposes.
- 31 NFC Payment**
Payment processing based in location or activity duration for public transport, gyms, theme parks, etc.
- 32 Intelligent Shopping Application**
Getting advices in the point of sale according to customer habits, preferences, presence of allergic components for them or expiring dates.
- 33 Smart Product Management**
Control of rotation of products in shelves and warehouses to automate restocking processes.



LOGISTICS

34 Quality of Shipment Conditions
Monitoring of vibrations, strokes, container openings or cold chain maintenance for insurance purposes.

35 Item Location
Search of individual items in big surfaces like warehouses or harbours.

36 Storage Incompatibility Detection
Warning emission on containers storing inflammable goods closed to others containing explosive material.

37 Fleet Tracking
Control of routes followed for delicate goods like medical drugs, jewels or dangerous merchandises.

Each year, more than 100 million shipping containers travel around the globe.



INDUSTRIAL CONTROL

38 M2M Applications

Machine auto-diagnosis and assets control.

39 Indoor Air Quality

Monitoring of toxic gas and oxygen levels inside chemical plants to ensure workers and goods safety.

40 Temperature Monitoring

Control of temperature inside industrial and medical fridges with sensitive merchandise.

41 Ozone Presence

Monitoring of ozone levels during the drying meat process in food factories.

42 Indoor Location

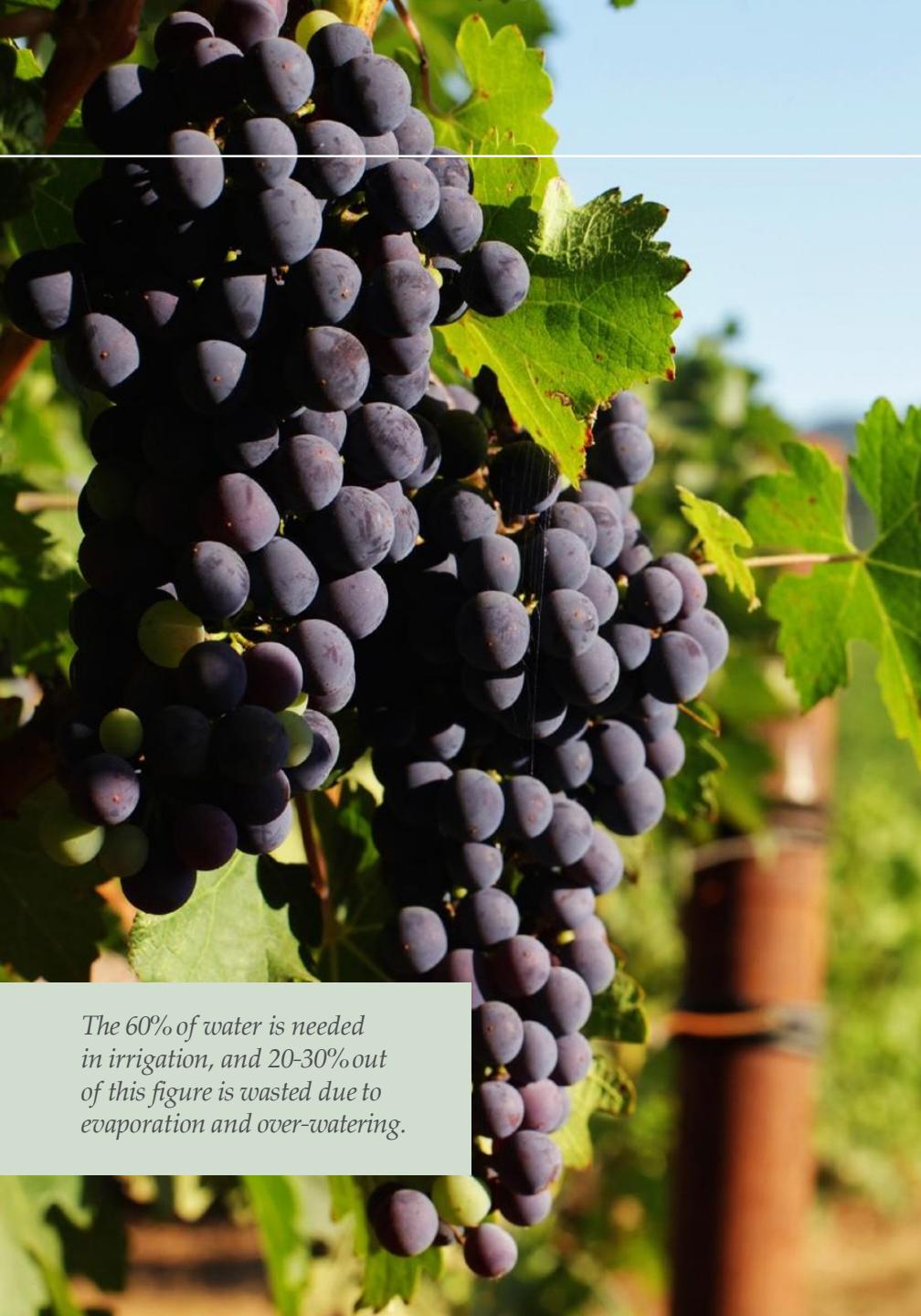
Asset indoor location by using active (ZigBee) and passive tags (RFID/NFC).

43 Vehicle Auto-diagnosis

Information collection from CanBus to send real time alarms to emergencies or provide advice to drivers.

The volume of cellular M2M subscriptions is expected to increase fourfold between 2010 and 2016.

Pyramid Research



SMART AGRICULTURE

- 44 Wine Quality Enhancing**
Monitoring soil moisture and trunk diameter in vineyards to control the amount of sugar in grapes and grapevine health.
- 45 Green Houses**
Control micro-climate conditions to maximize the production of fruits and vegetables and its quality.
- 46 Golf Courses**
Selective irrigation in dry zones to reduce the water resources required in the green.
- 47 Meteorological Station Network**
Study of weather conditions in fields to forecast ice formation, rain, drought, snow or wind changes.
- 48 Compost**
Control of humidity and temperature levels in alfalfa, hay, straw, etc. to prevent fungus and other microbial contaminants.
- 49 Hydroponics**
Control the exact conditions of plants grown in water to get the highest efficiency crops.

The 60% of water is needed in irrigation, and 20-30% out of this figure is wasted due to evaporation and over-watering.



SMART ANIMAL FARMING

50 Offspring Care

Control of growing conditions of the offspring in animal farms to ensure its survival and health.

51 Animal Tracking

Location and identification of animals grazing in open pastures or location in big stables.

52 Toxic Gas Levels

Study of ventilation and air quality in farms and detection of harmful gases from excrements.

The CH₄ emissions from animal farming in the U.S. have increased a 17% during the past decade.

U. S. Environmental Protection Agency

A close-up photograph of a young woman with blonde hair, smiling warmly at the camera. She is wearing a grey sleeveless top and a long necklace made of brown and gold beads. In her right hand, she holds a white tablet computer, which is partially visible.

DOMOTIC & HOME AUTOMATION

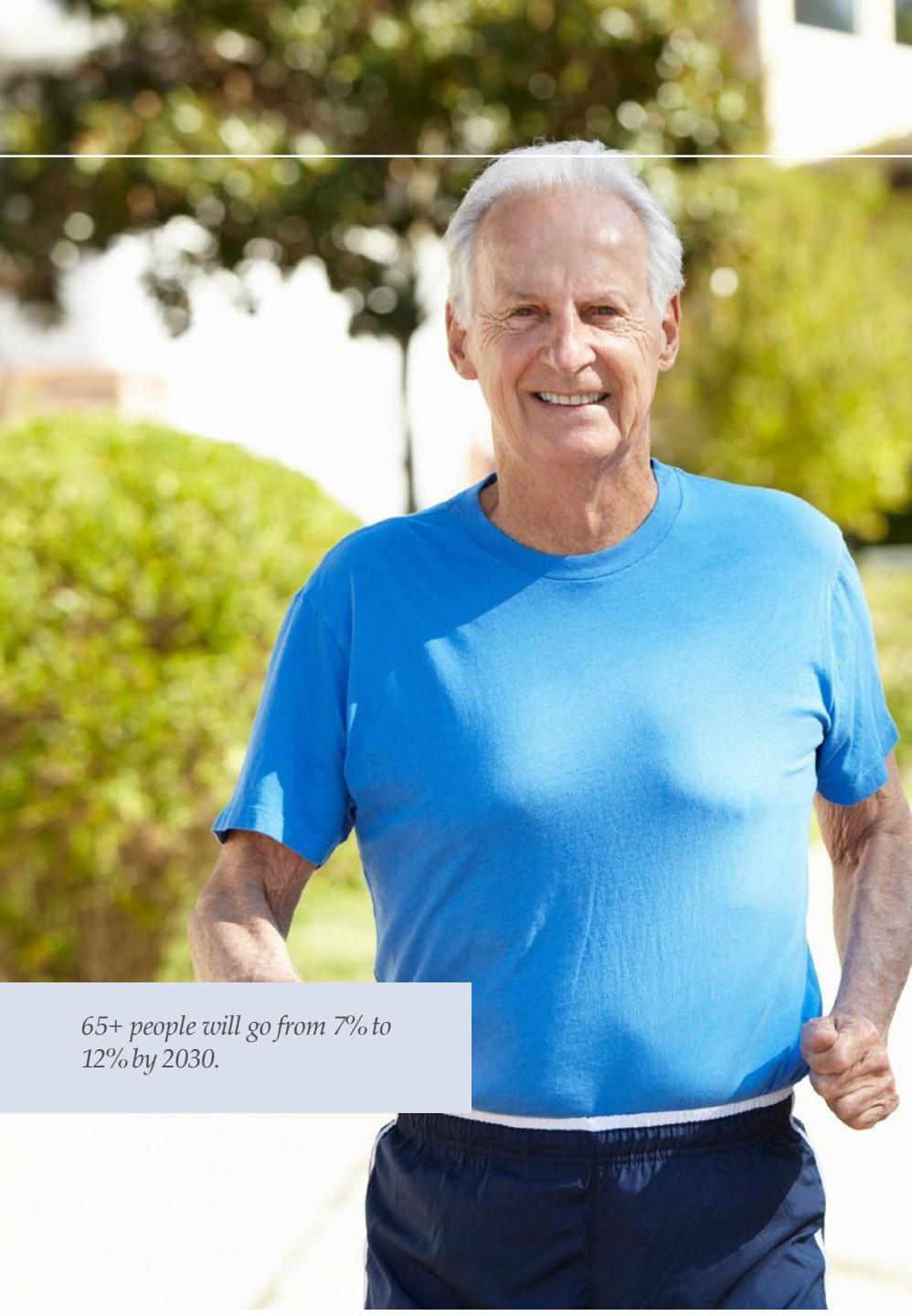
53 Energy and Water Use
Energy and water supply consumption monitoring to obtain advice on how to save cost and resources.

54 Remote Control Appliances
Switching on and off remotely appliances to avoid accidents and save energy.

55 Intrusion Detection Systems
Detection of windows and doors openings and violations to prevent intruders.

56 Art and Goods Preservation
Monitoring of conditions inside museums and art warehouses.

European Union homes should cut energy consumption by 20% by 2020 according to Kyoto Protocol.

A photograph of a smiling senior man with white hair, wearing a blue t-shirt and dark shorts, jogging outdoors on a sunny day.

eHEALTH

57 Fall Detection
Assistance for elderly or disabled people living independent.

58 Medical Fridges
Control of conditions inside freezers storing vaccines, medicines and organic elements.

59 Sportsmen Care
Vital signs monitoring in high performance centers and fields.

60 Patients Surveillance
Monitoring of conditions of patients inside hospitals and in old people's home.

61 Ultraviolet Radiation
Measurement of UV sun rays to warn people not to be exposed in certain hours.

65+ people will go from 7% to 12% by 2030.



slideshare.net/mahdinasseri