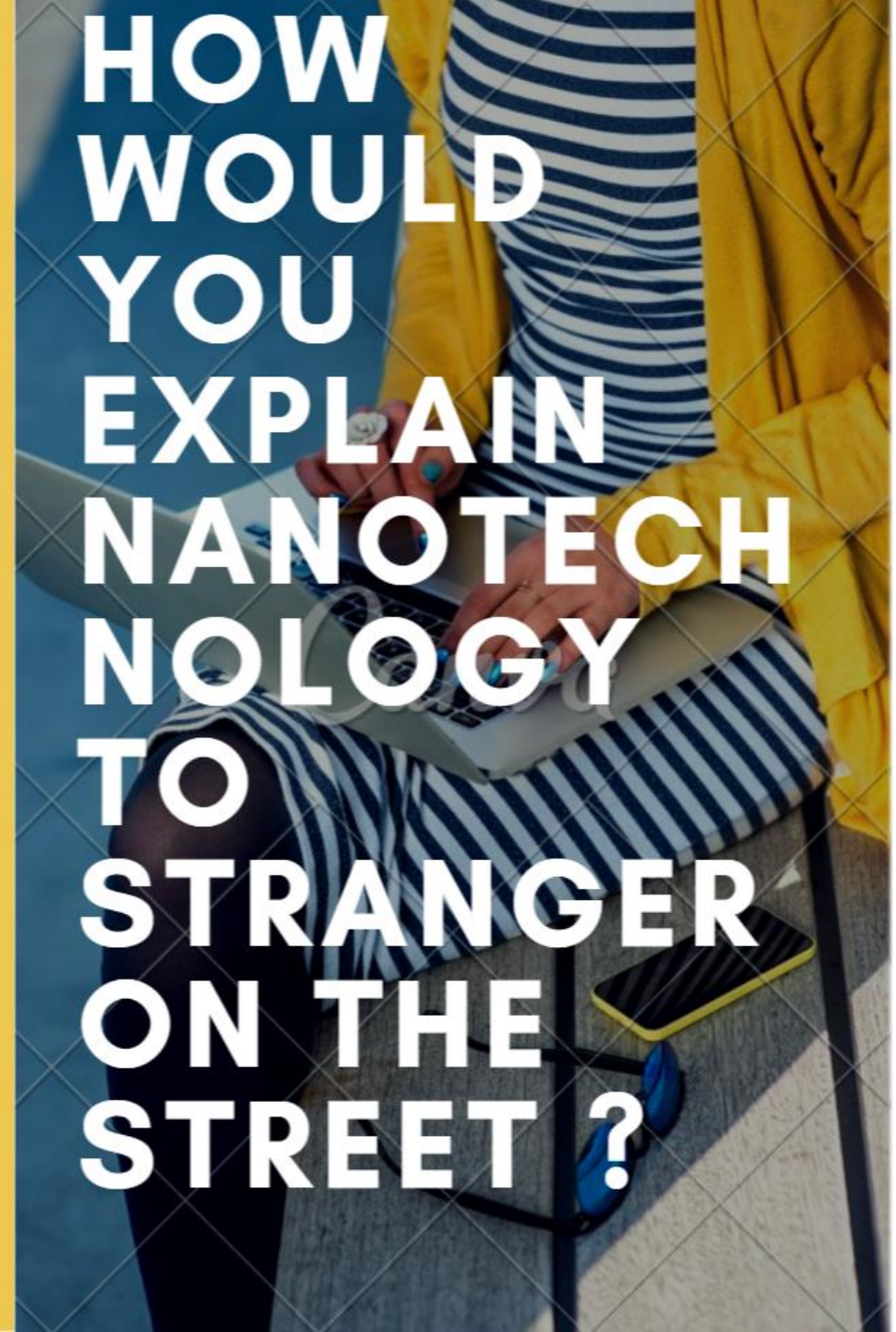

HOW
WOULD
YOU
EXPLAIN
NANOTECH
NOLOGY
TO
STRANGER
ON THE
STREET ?

INTRODUCTION

the past 70 years have seen the way we live and work transformed by a lot of inventions. but i think that the one was really highlighted is a tiny invention which is called Nanotechnology

Definition:

nanotechnology is a relatively new branch of science proves the fact of easy manipulation of element's properties when it is in its nanoform (diameter of 1 - 100 nm)





nanotechnology history :

the term Nanotechnology was used first by the japanese scientists Norio Tanigushi (1912-1999) . In 1974 paper on production technology that creats objects and features on the order of a nanometer. The American engineer K.Eric Dexler is credited with the development of molecular nanotechnology , leading to nanosystems machinery manufacturing. Inlate 1990s and early 2000s , almost all industrialized nations created nanotechnology initiatives, leading to a worldwide proliferation.

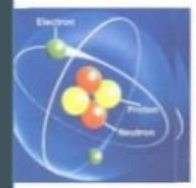
Nanoparticles :

What do you mean by Nano Particles ?



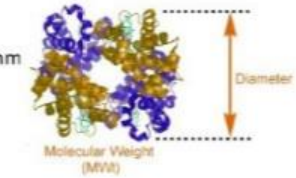
Nano Particles are the particles of size between 1 nm to 100 nm

- 1 nm is only three to five ***atoms*** wide.
- ~40,000 times smaller than the width of an average human hair

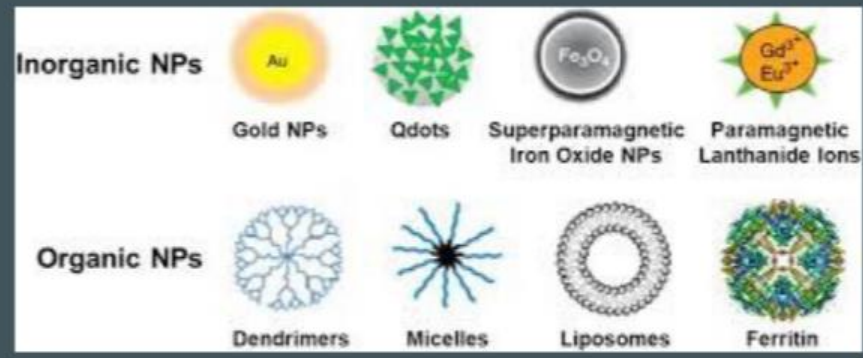


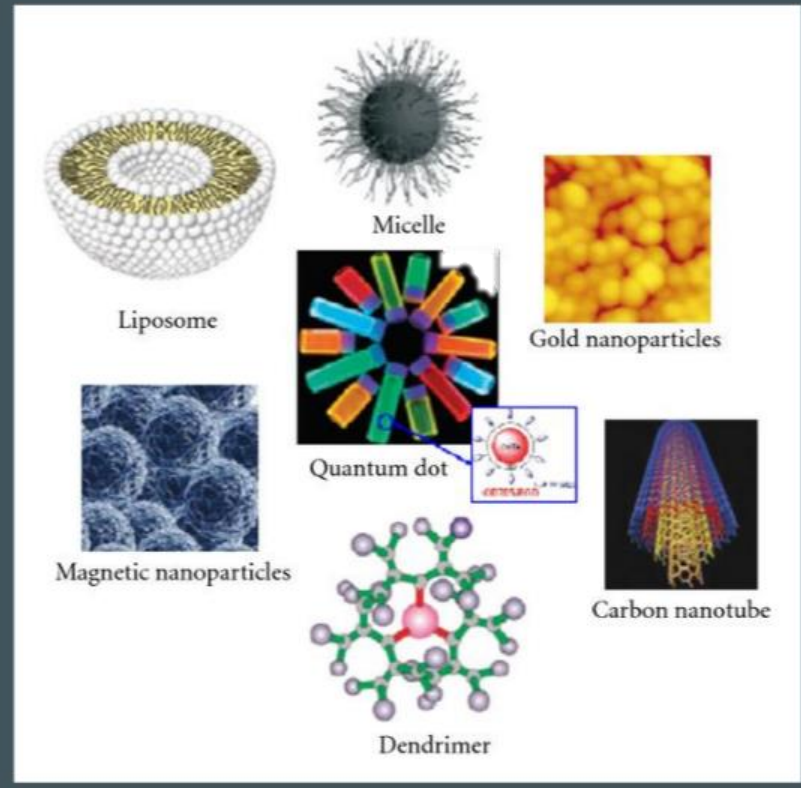
Nanometer - One billionth (10^{-9}) of a meter

- The size of Hydrogen atom 0.04 nm
- The size of Proteins ~ 1-20 nm
- Feature size of computer chips 180 nm
- Diameter of human hair ~ 10 µm



At the nanoscale, the physical, chemical, and biological properties of materials differ in fundamental and valuable ways from the properties of individual atoms and molecules or bulk matter


Inorganic NPs
Au
Gold NPs
Qdots
Fe_3O_4
Superparamagnetic Iron Oxide NPs
Gd^{3+} Eu^{3+}
Paramagnetic Lanthanide Ions
Organic NPs
Dendrimers
Micelles
Liposomes
Ferritin


Micelle
Liposome
Gold nanoparticles
Quantum dot
Magnetic nanoparticles
Carbon nanotube
Dendrimer



APPLICATIONS :

nanotechnology today is growing very rapidly and has infinite applications in almost every thing we do, the medecine we take, food we eat,,chemicals we use , car we drive and much more.

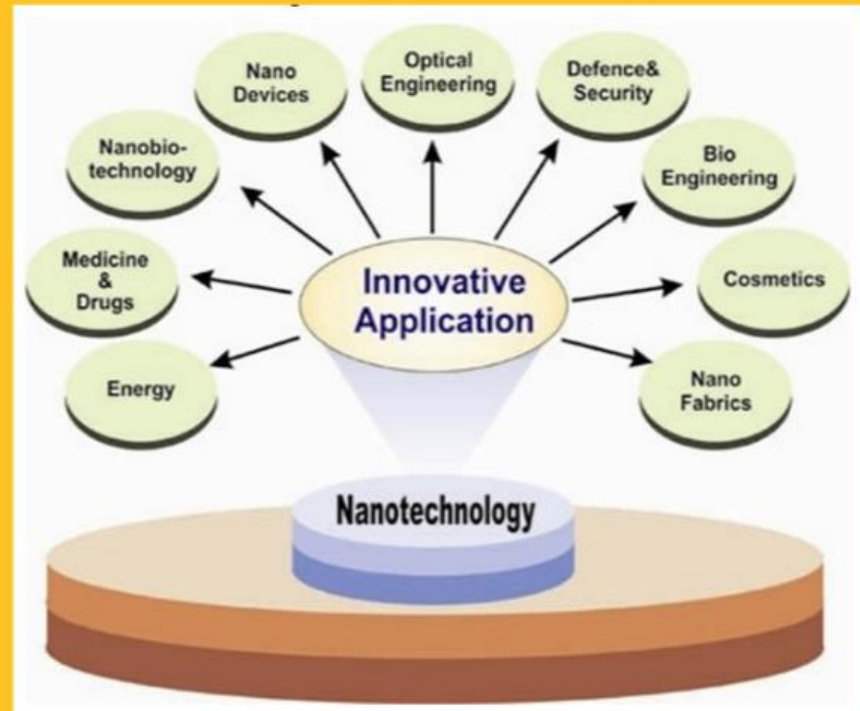
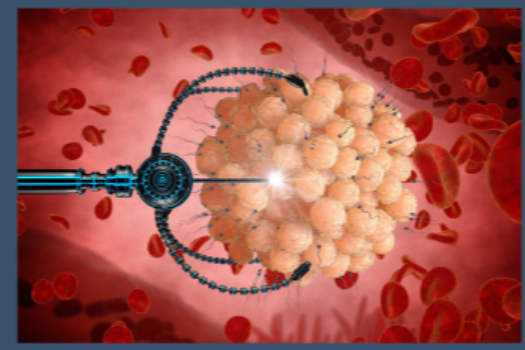
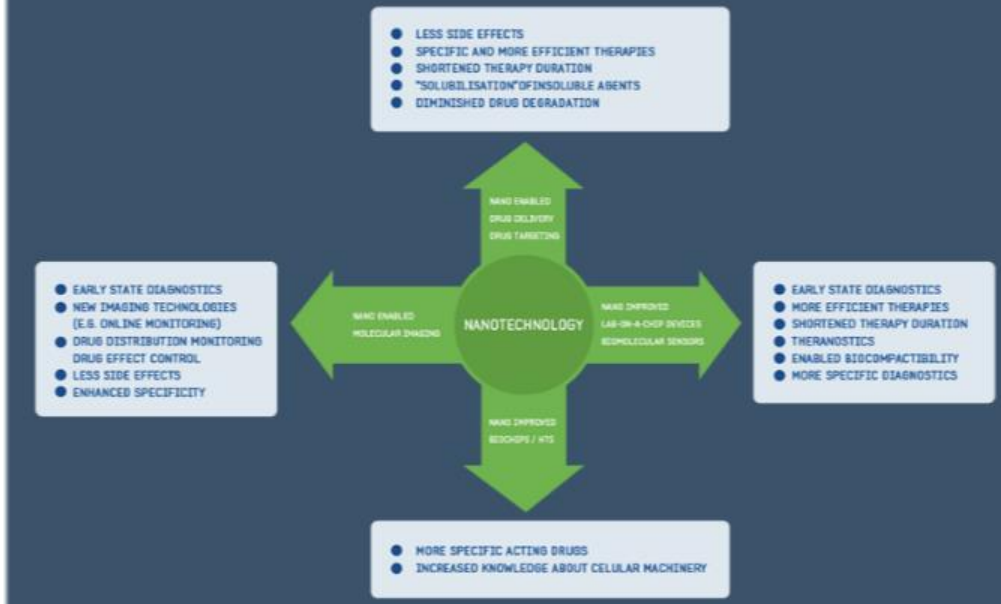


Fig 1. Various applications of nanotechnology

NANOMEDECINE





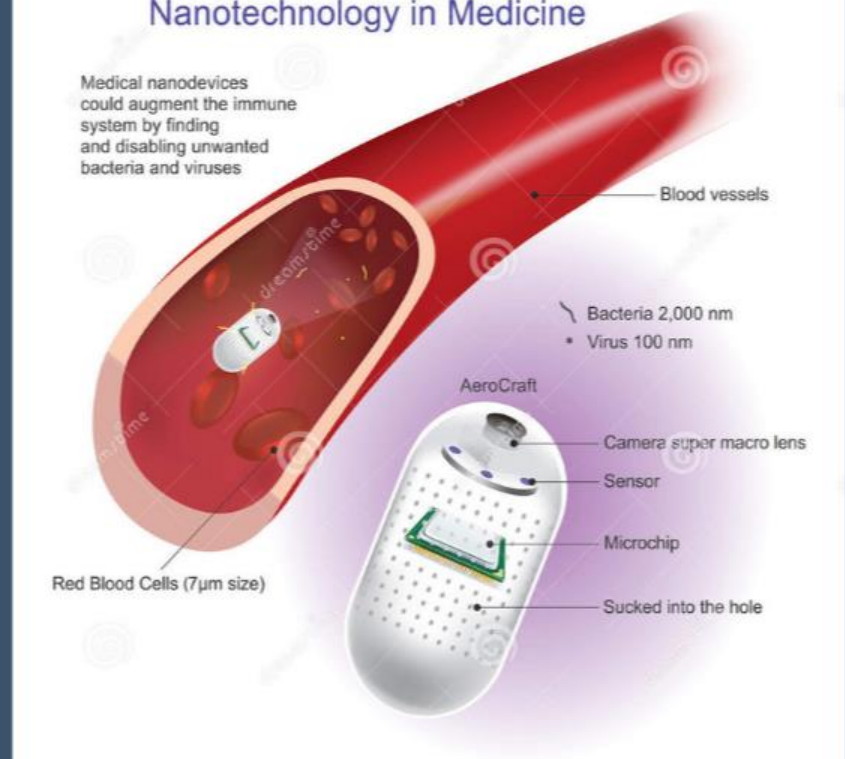
Nanomedicine: Nanotechnology to Medicine

Apply Nanotechnology:

Nanomedicine
Use of nano-materials in medicine → unique medical effects

- Maintain drug activity.
- Increase water solubility.
- Delivery drug by nanoparticle
- Increase drug efficiency
- Traceable or directable drug

Nanotechnology in Medicine





Nanoparticles are tiny; more than 2,000 could fit inside a red blood cell

Nanoparticles circulate in the bloodstream and attach to certain cells, including cancer cells

A device worn outside the body can detect the nanoparticles and provide useful information to doctors

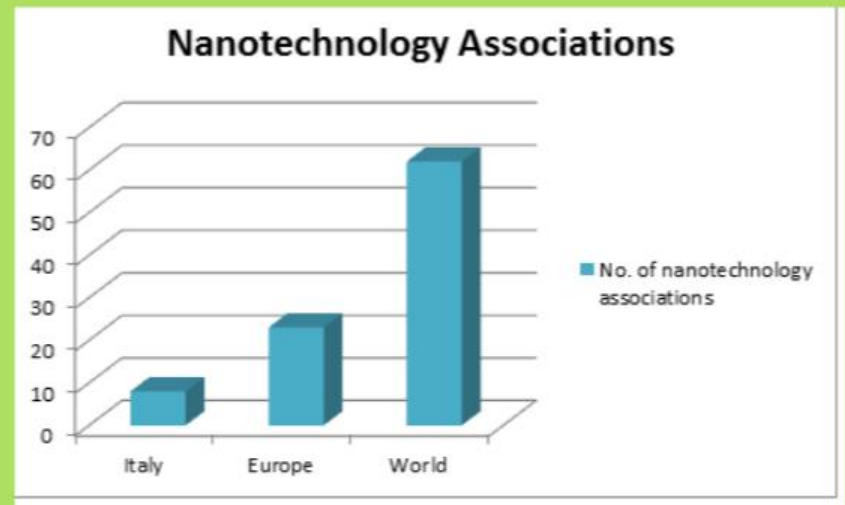
Benifits :

- in the field of energy , it may transform the ways in which we obtain and use energy like macking solar power more economical and developping energy storage.
- according to electronics, it has made a revolution ,qountum dots for example can be used for illumination.
- in medecine , it is used in surgeries that can be much faster and more accurate.

Risks :

- nanopollutants
- privacy invasion
- economic upheaval
- nanotechnology weapons
- nanotoxicology





Statistical Analysis of nanotechnology associations





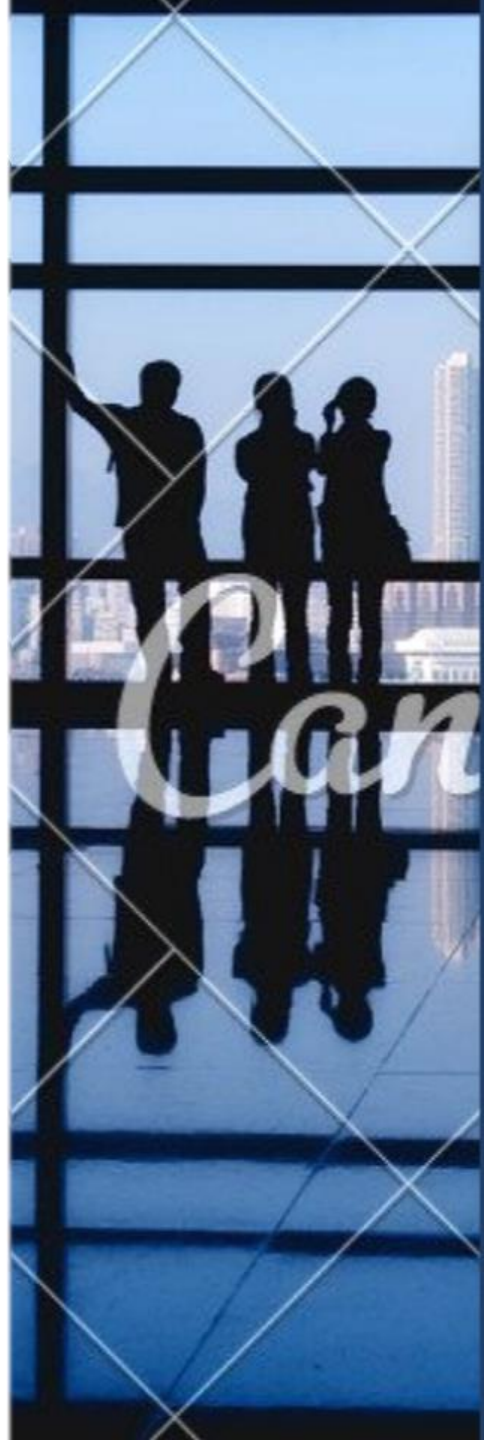
NANOTECHNOLOGY DEBATE!!!!





there are so many
differnt points of
view about nano
technology , these
differences are
gothered in the
most circulated
questions in
people's minds :
Is this new
technology safe ???
How nanotechnology
will lead to a better
future for us ??

How long will it take to develop nanotechnology ?? How do we gain the immense benifits of advanced nanotechnology while avoiding its potential misuse??



CONCLUSION

As science and technology advance, the world looks more and more like science fiction , and advanced nanotechnology is definitely a big driver in that direction.



BY STUDENT DJIHANE BENRABAH

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