

Quantum Energy and Sustainable Solar Technology

John Mitchell

IP Strategies









Leonardo da Vinci

Engineer and scientist

Completed 7 paintings in this lifetime

Mona Lisa – most famous

Last Supper – number 3

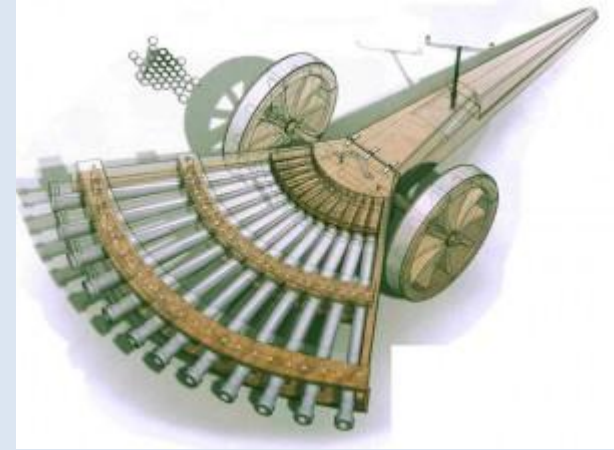
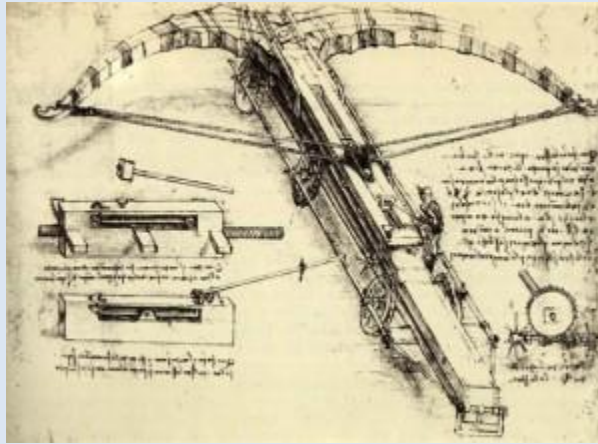
Smartest person in history (opinion)

Estimated IQ of 220 – Einstein 160

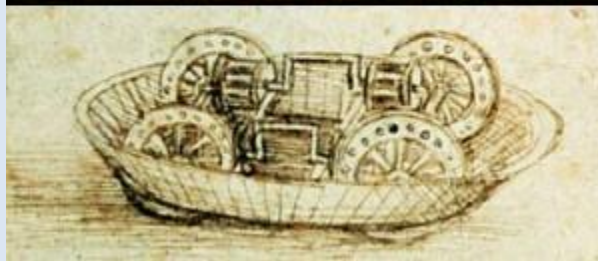




War Inventions



Armored tank - 400 years ahead of its time



Worked for the Duke of Milan

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Mechanical Inventions



First known scuba gear
not invented till 1940s



First self propelled vehicle
Developed by Karl Benz
(Mercedes-Benz)
400 years later



Inventions of Flight



Helicopter – drawn 450 years ahead of its time

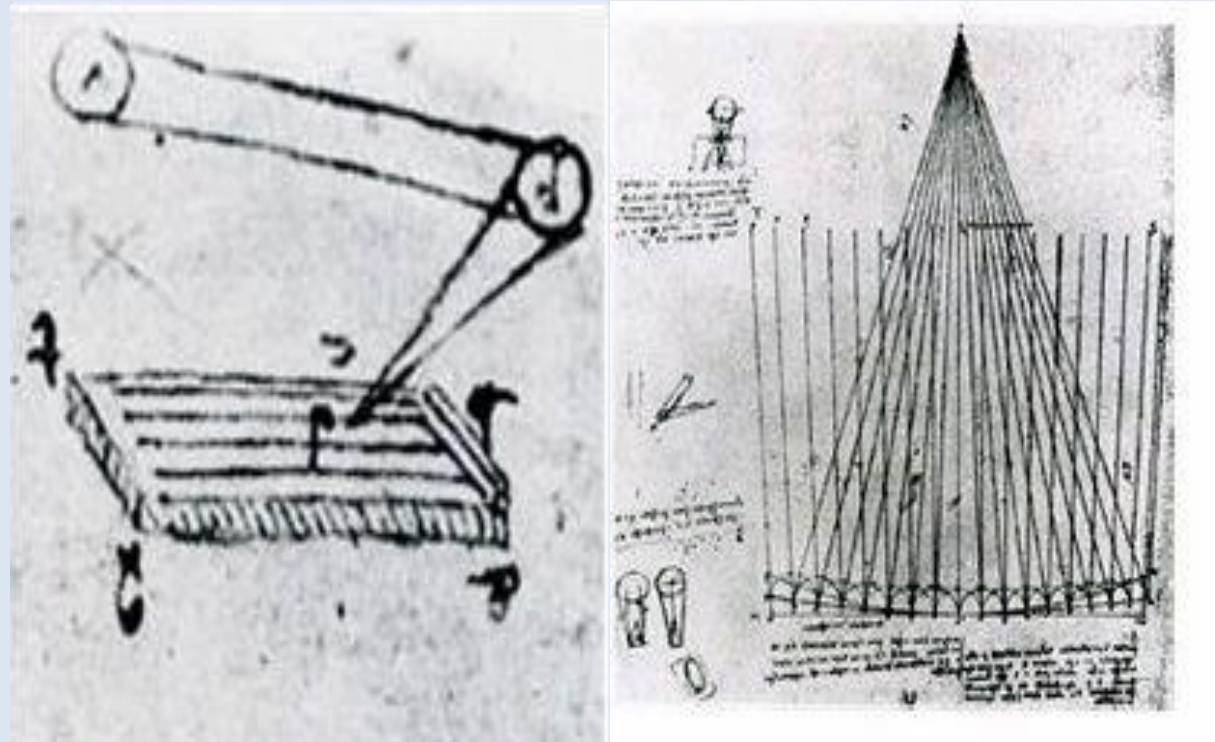


Parachute – 300 years before the first known jump



Predicted Solar Industrial Revolution

First known drawings of solar systems



Existence of PV noted in 1914

Einstein received Noble Prize for explaining the theory of photovoltaics.
420 years later

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Help address the Terawatt Challenge



Richard Smalley – 1996 Nobel Prize Winner

“Find enough clean energy to raise the living standards of people around the globe”

1.5 Billion people in the dark (21%)

Earth at Night
More information available at:
<http://antwrp.gsfc.nasa.gov/apod/ap001127.html>

Astronomy Picture of the Day
2000 November 27
<http://antwrp.gsfc.nasa.gov/apod/astropix.html>

QESST - Consortium of 8 universities



Lead University
Silicon
Nanostructures
Power conditioning



Nitride growth
Indium gallium nitride

Optics



III-V



Nanowires
photonics

Thin film
CIGS



Material
defects





Key Components

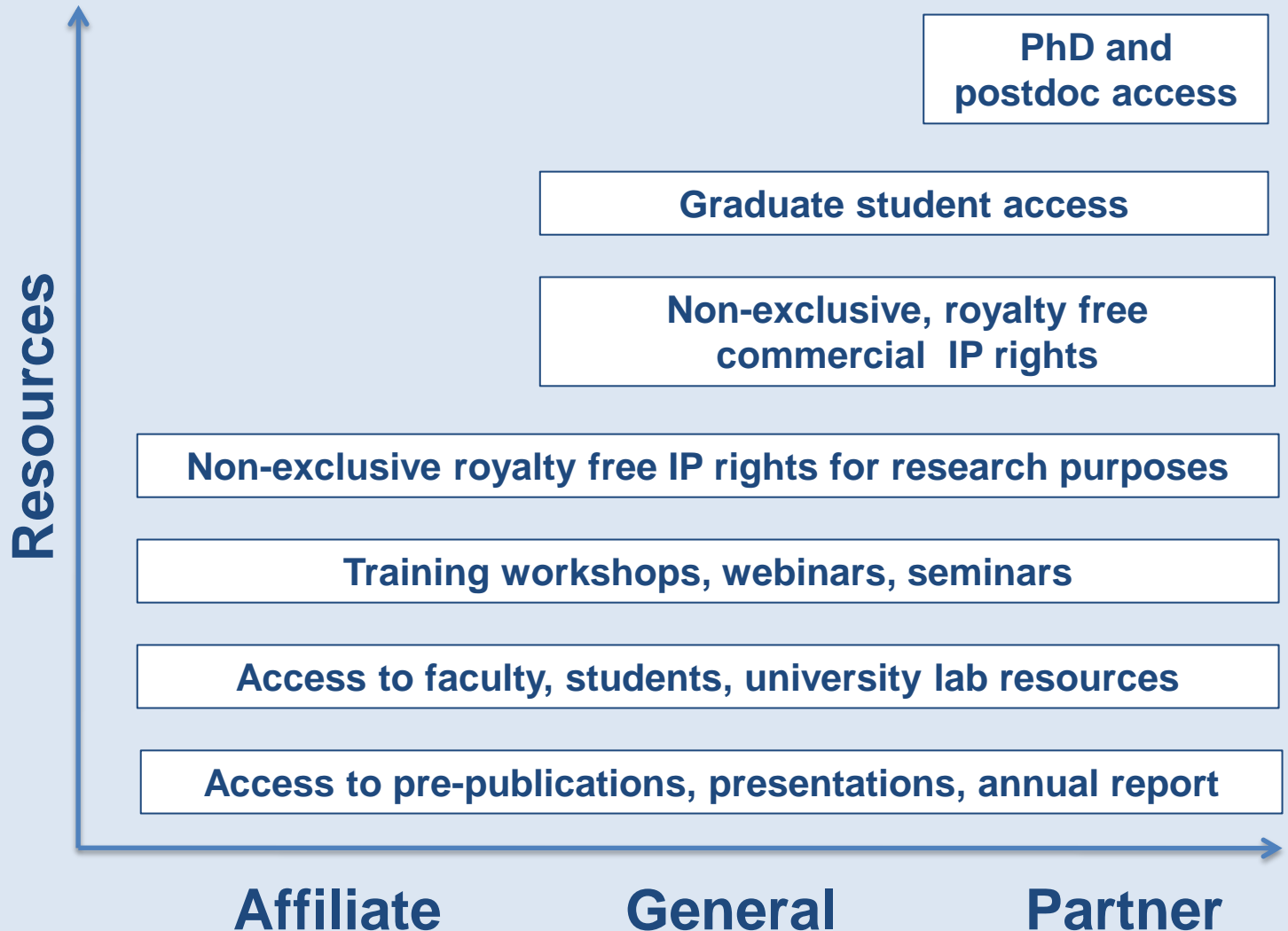


Research **Education**
Joint Proposals
Students **Industry**
Engagement
Partner Universities **Faculty**
Workshops **Innovation**

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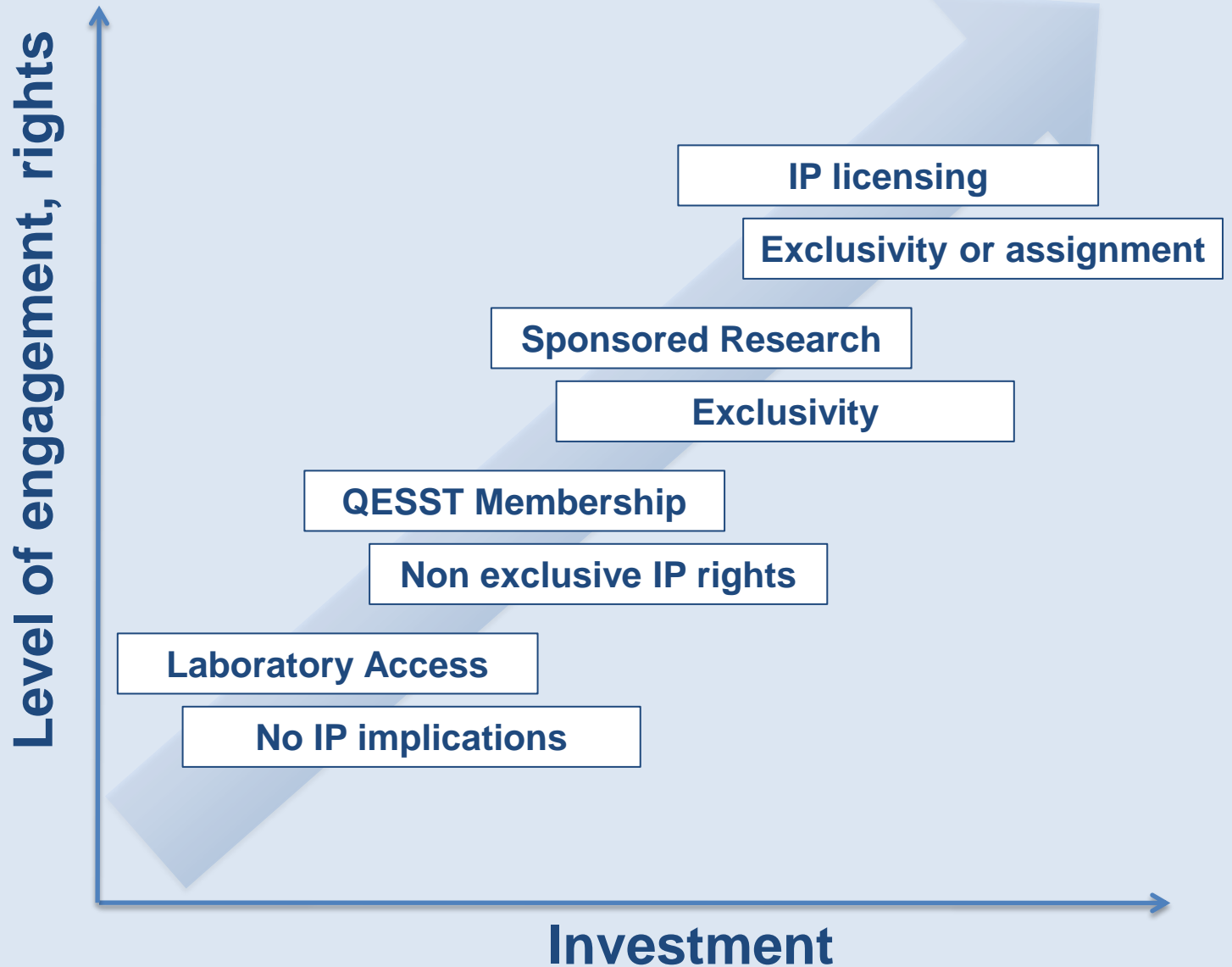


Industrial Membership Structure





Industry engagement pathways





Industry engagement pathways

Sponsored Research

Soitec
National Instruments
Nth Degree
Addventure Support
Enterprises
BAE
Intel
Qualcomm
Ridgetop
Space Micro
Texas Instruments
First Solar

QESST
Membership

Amtech
Soitec
National Instruments
Sinton Instruments
Hanwha Solar
Veeco
Accustrata

Laboratory Access

Amtech
Soitec
Nth Degree
Natcore
Idalia
IZAR Solar
IQE

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Industry engagement pathways



Installed on campus

Sponsored Research

Partner on grants

QESST Member

Laboratory Access

Colocation



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(IP) Value Proposition - Industry

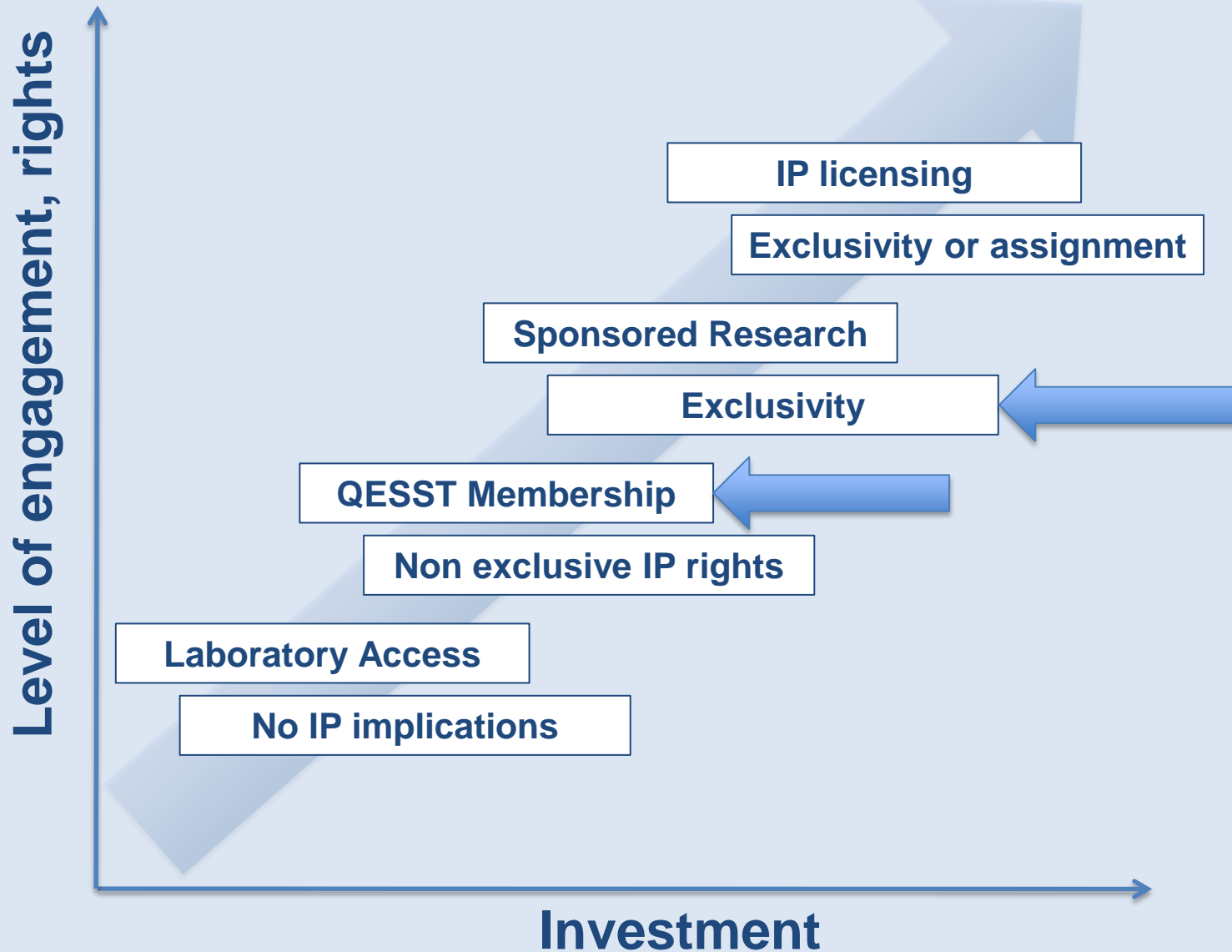
One straight forward agreement provides IP rights to all QESST universities



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Industry engagement pathways





Background IP

Background IP



Improvements
to Background
IP



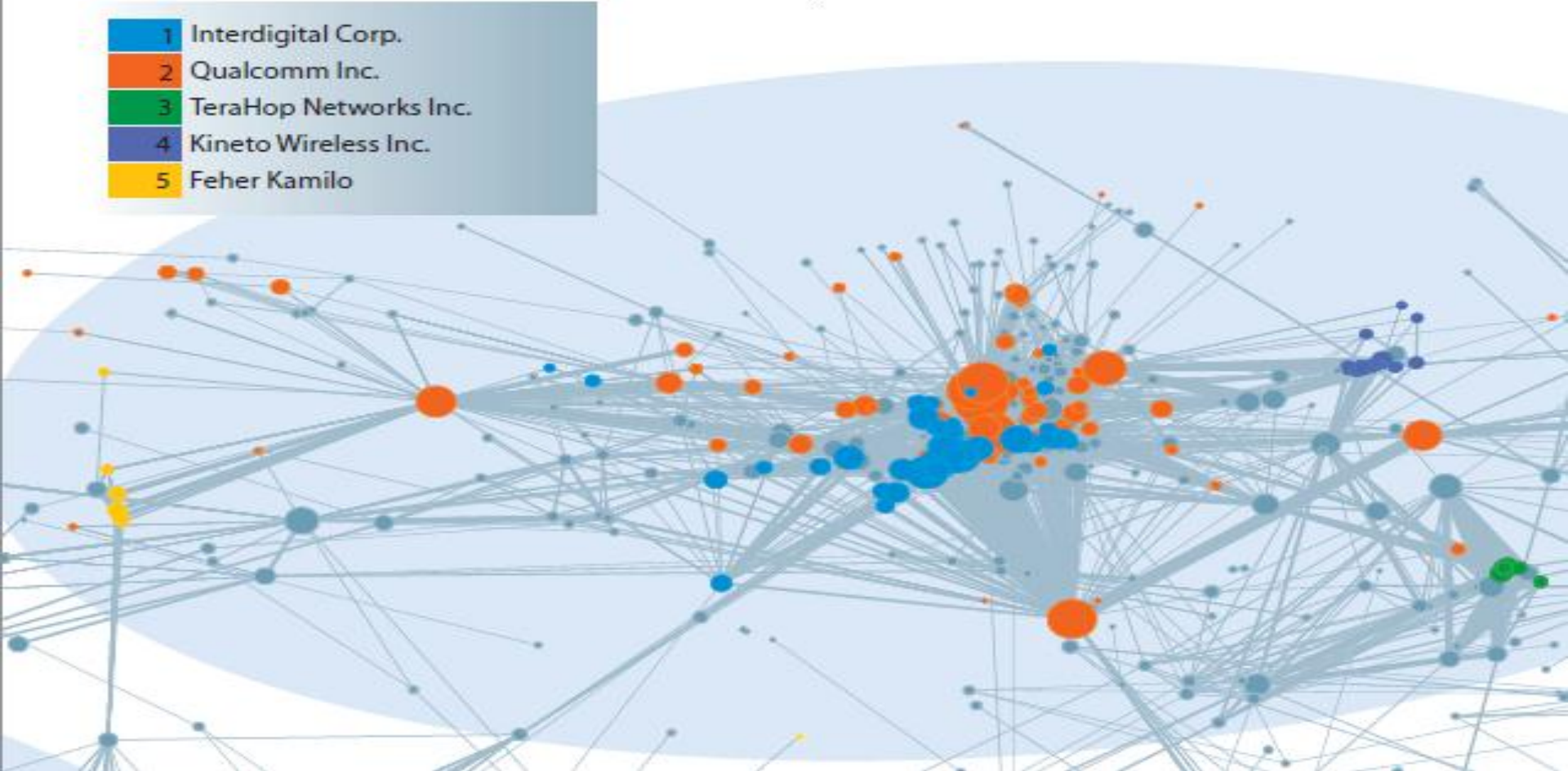
Effectively
exclusivity

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Qualcomm background IP

3. Mobile data transmission

- 1 Interdigital Corp.
- 2 Qualcomm Inc.
- 3 TeraHop Networks Inc.
- 4 Kineto Wireless Inc.
- 5 Feher Kamilo

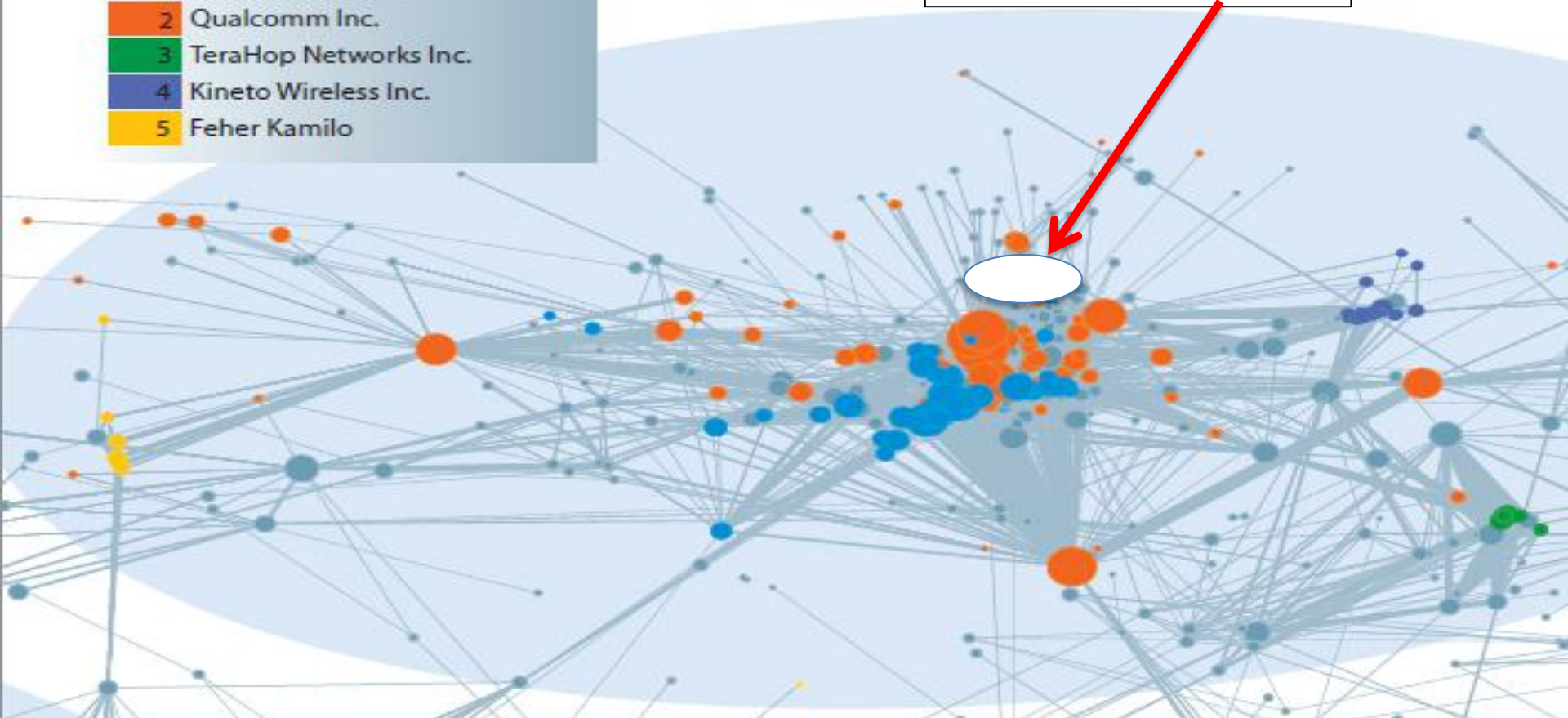


Qualcomm background IP

3. Mobile data transmission

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Areas to target





Hybrid Model

**ERC
Membership**



**Non exclusive
IP**

**Hire or
subcontract**

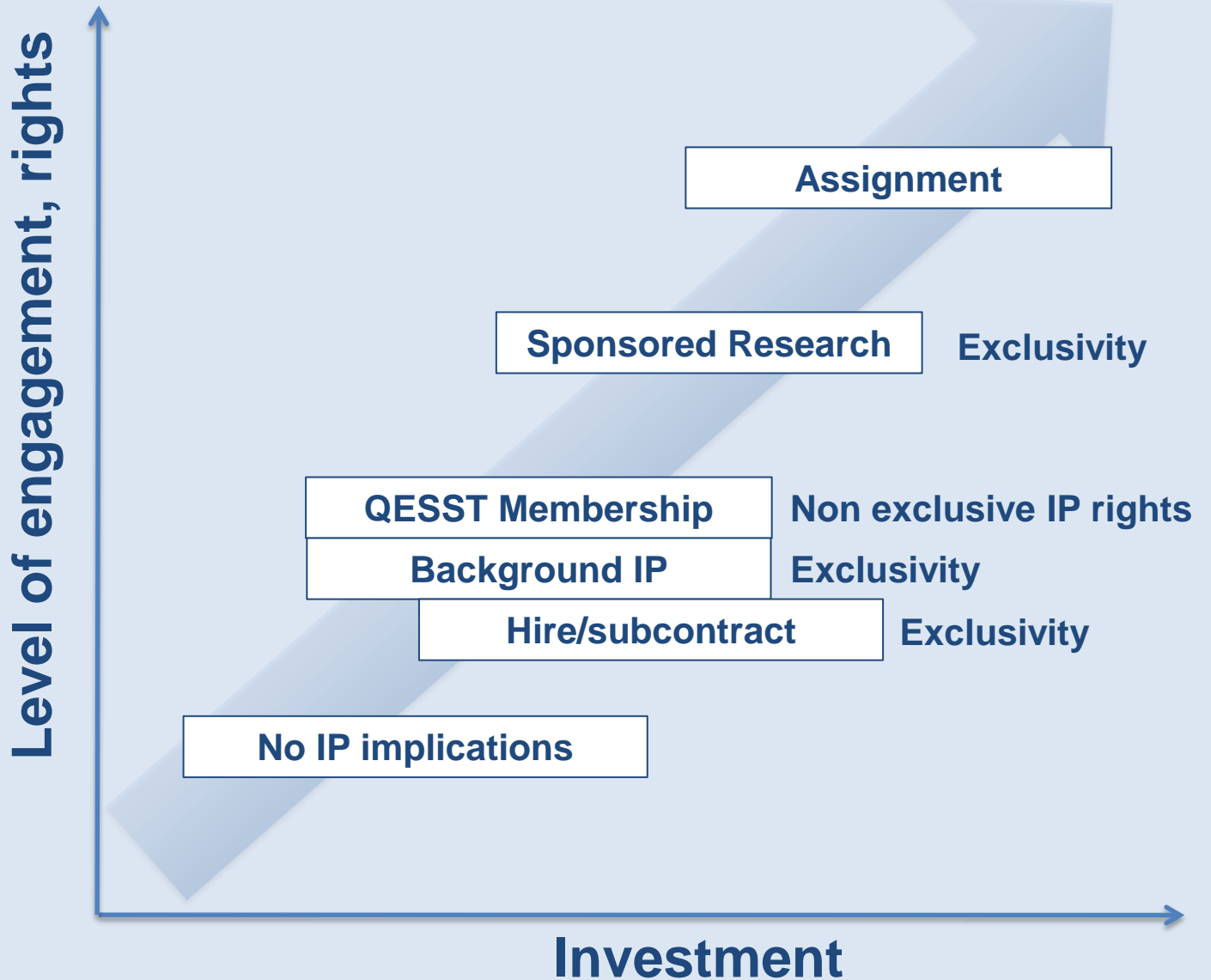


Exclusive IP



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Recap



Questions

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