

Early-stage investments in WiFi are still possible

Is it too late for further early-stage investing in WiFi?

If not, which areas will be more promising for early-stage investing in WiFi?

WiFi, the wireless communication standard attracting large investments

WiFi (Wireless Fidelity) is a standard that allows short-range wireless communication between computers (and/or other devices). WiFi is also known as Wireless Local Area Network or 802.11.

To connect two devices *via* WiFi, each device must have the appropriate connectivity. Normally, PCs achieve this with a WiFi card. A base station (or access point) is required so that several devices can share a resource such as a broadband Internet connection.

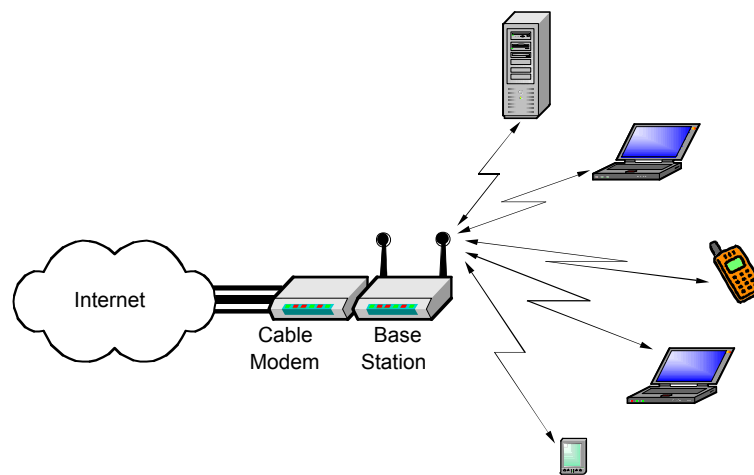


Figure 1. In a standard WiFi network several devices can share a wireless network resource (such as Internet connection).

The total WiFi market is predicted to be over US\$3b by 2004 and over US\$5b by 2007.

Large amounts of venture capital have been invested in WiFi start-ups (mainly in WiFi chipsets and silicon technologies as well as service providers). Since 2001, about 60 start-ups have raised more than US\$650m. Intel Capital assigned US\$150m to investments in companies developing WiFi technology.

Is it too late for further early-stage investing? If not, which areas will be more promising for early-stage investing in WiFi? We now answer these questions by looking at the strengths, weaknesses, opportunities and threats of the WiFi technology.

Strengths of worldwide standardisation with little investment possibilities

The strengths of WiFi relate mainly to its worldwide standard status. Two examples of such strengths are the lack of regulatory barriers and the low cost of end-user devices (in 2002, PC cards were sold at around US\$60 and chipsets at about US\$15).

However, such strengths do not seem to facilitate new investment possibilities because of the low barriers of entry. As we can see, barriers of entry are minimal because the main strength is the lack of such barriers of entry!

Weaknesses of standardisation with some promising investments

Interestingly enough, the underlying causes of the strengths are also the causes of most weaknesses. Areas such as Security, Quality of Service and Radio Interference might present good areas for investments.

Security

Since the radio connection uses an unlicensed spectrum, anyone can listen to the communication. In order to achieve sufficient levels of security, additional cryptographic measures (such as Virtual Private Networks or VPNs) must be used.

Even if WiFi security has received investments, further investments are still possible, mainly due to the complexity of the problem coupled with the possibility of high value and high barriers of entry for competitors.

Quality of Service Assurance

Ensuring high Quality of Service [QoS] can be challenging when using an unlicensed spectrum. QoS does need to achieve a magic number. It needs to meet users' expectations (low delays, bandwidth, etc)!

Radio interference

Since the WiFi radio spectrum is unlicensed, it is used by many technologies and applications. That means that the risk of interference will increase as more users of such spectrum accumulate in the same area.

Minimising the radio interference problems would allow higher number of users and, thus, improved business cases could be built.

Opportunities provide great investment possibilities

This section deals with investments that might arise due to opportunities for new developments and enhancements to WiFi. Peer-to-peer networks and management-of-network assets might present good areas for investments.

Peer-to-peer networks

Peer-to-peer networks allow devices to communicate with one another without the need of a central device or network, such as a base station. Mainstream vendors have not been especially interested in this mode of operation. Telcos might see it as a challenge or way by which users could circumvent telco services. Little investment has been made in peer-to-peer WiFi networks. A notable exception is the start-up Mesh Networks Inc.

Peer-to-peer networks can be used in many cost-effective ways. For instance, it can expand the market, without disrupting or cannibalising it. The same device can use the WiFi connection in a peer-to-peer network (eg. group of teachers within same school, see Figure 2) while at the same time using WiFi to access the Internet (as in Figure 1).

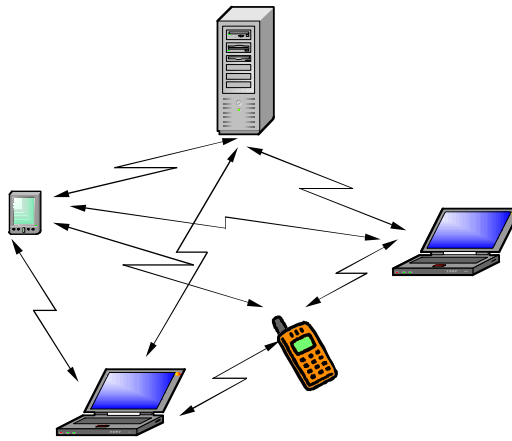


Figure 2. A peer-to-peer network does not rely on a central unit or base station

Management of wireless networks and mobile assets

As the use of WiFi in enterprise networks increases, so will the need for tools to manage the network and the mobile devices. A sound business case for wireless corporate networks requires cost-effective management of network elements and devices.

Threats offer little investment possibilities

The threats to WiFi technology seem to facilitate only a few investment possibilities because either the barriers of entry seem low and the value added is minimal.

However, in reality the WiFi standard is not one standard but many standards (such as 802.11a, 802.11b or 802.11g). Most of these flavours are mutually incompatible. Thus there is a risk of fragmentation (like for mobile phones in the US). Should such a fragmentation occur, start-ups would appear to offer simple standard transition and multi-standard devices.

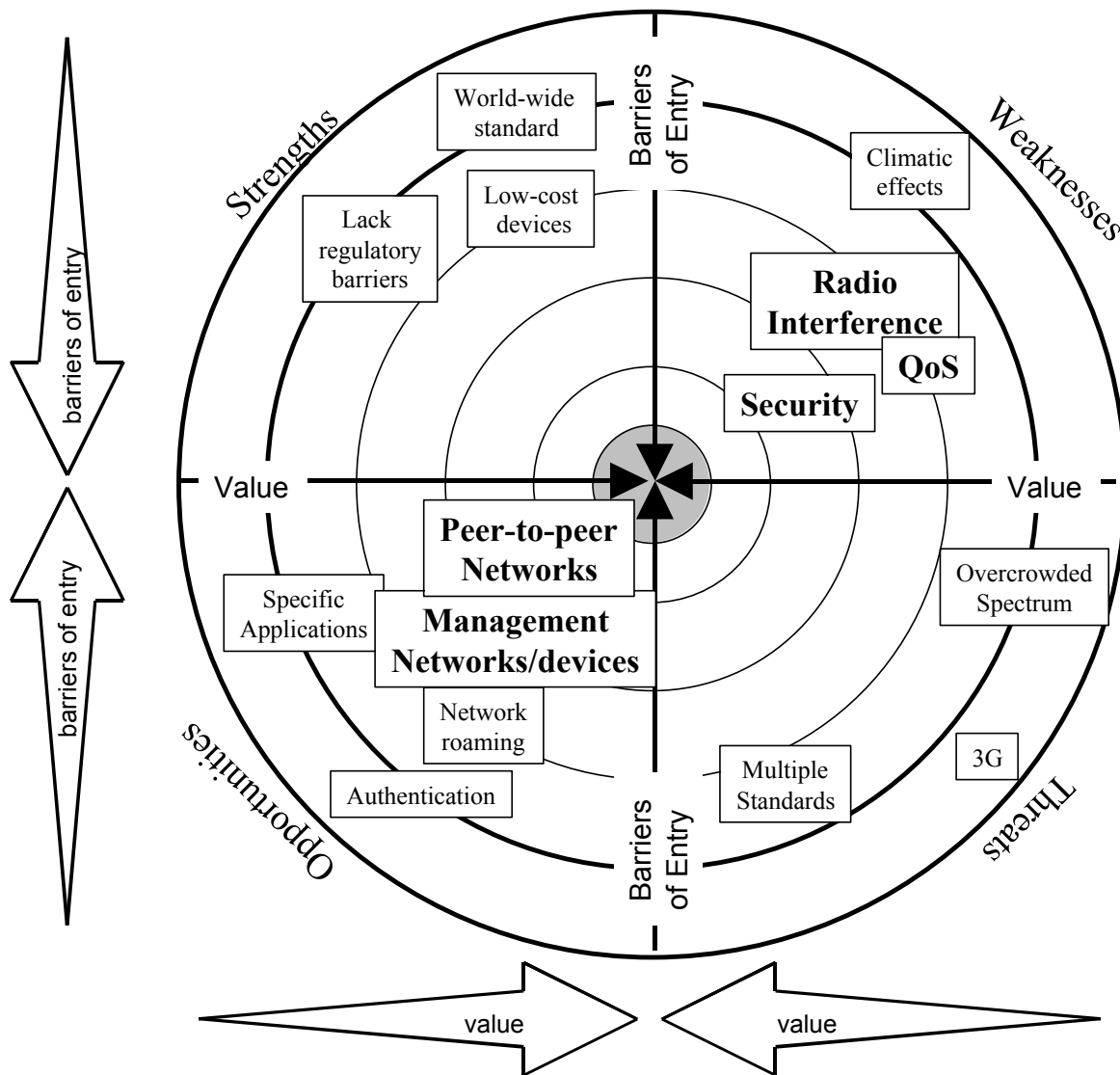
The WiFi Investment Target for evaluating new areas of investment

So far we have presented WiFi areas well known today. How will the new areas relate to these ones? The WiFi Investment Target can help you position the areas relative to each other and provide a first approximation to your evaluation.

Figure 3 presents the WiFi Investment Target. To place a new area in the Target, you should:

- Classify it as strength, weakness, opportunity or threat of the WiFi standard.
- Estimate the levels of barriers of entry and value. For assistance, you can assess barriers and value of the new area comparatively to the areas already in the target.
- Place the new area in the target.

The closer the new area is to the centre of the target, the more promising it will be.



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Figure 3. The WiFi Investment Target.
Most promising areas are close to centre of target.
Barriers of entry depicted vertically (higher barriers at centre of target) and
value depicted horizontally (higher value at centre of target).

Conclusion

The strengths and threats of the WiFi standard do not offer many investment prospects, while its weaknesses and opportunities offer more investment possibilities. Areas of great interest are peer-to-peer networking and security.

The WiFi Investment Target (Figure 3) can provide a first approximation to the evaluation of new areas of investment.

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More information

Should you require more information on this topic or pointers to information and references, or if you wish to comment, please contact the author at jordi_robert@internetaddress.com