

# Between the Lines

October 10th, 2007

## Emerging trends: 3D printing; robots galore; human augmentation

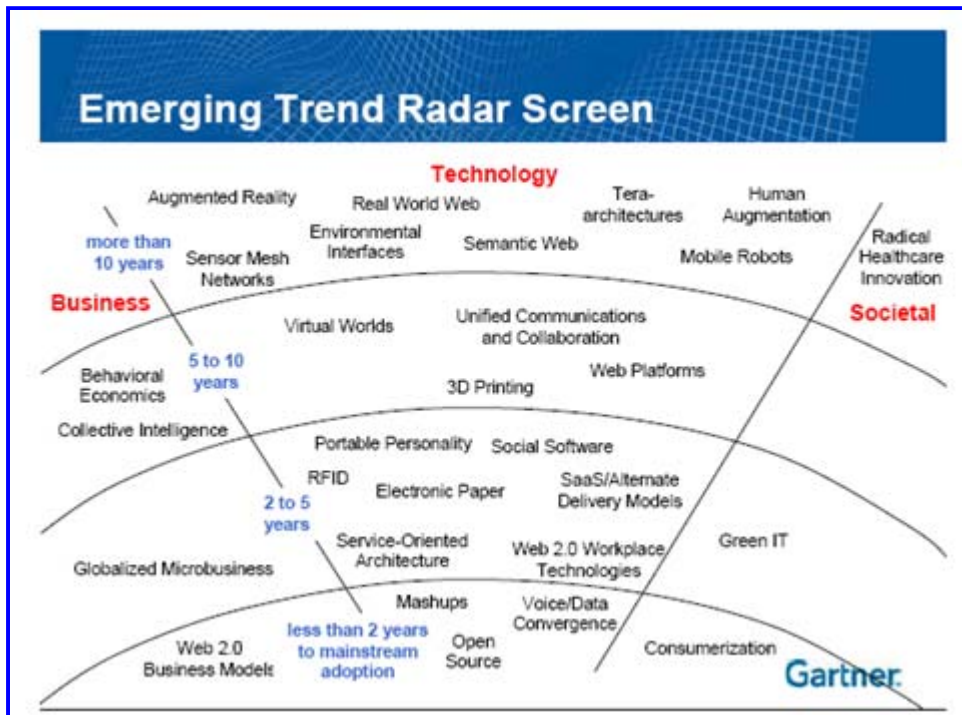
Posted by Larry Dignan @ 7:15 am

Categories: General, Gartner Symposium

Tags: 3D, Printer, Timeline, Robot, Collective Intelligence, Printing, Robots, Printers, Emerging Technologies, Hardware, Peripherals, Larry Dignan

Gartner unveiled its emerging technologies outlook for technologies we'll see in more than 10 years and it's a landscape filled with robots, human augmentation and collective intelligence.

Jackie Fenn, an analyst at Gartner, walked through a bevy of technologies—some that are around today but just haven't hit prime time. Fenn was speaking at the Gartner Symposium/ITxpo in Orlando.



Here's a look at the more interesting items she outlined and the timeline for adoption.

**The Real World Web:** The general idea of the real world Web is context-telling users what they need to know immediately. This Web would be proactive and be able to manage identity and avatars and use tags so machines can gather information. The foundation for this vision is wireless technology, sensors, location and semantic technologies. Timeline: 2015 to 2020.

**Virtual worlds and social software:** Fenn acknowledged that these emerging technologies were no big leap. The key is finding what's enduring in social networking and virtual worlds. "Virtual worlds will slide down the trough of disillusionment pretty

soon," says Fenn. "Virtual worlds need to get easier and they will go through peaks and troughs a few more times. As for enduring features, a visible presence, open communications and personalization will make these technologies keepers. So when will these technologies evolve? Social software: 2 to 5 years from now. Virtual worlds: 5 to 10 years from now.

**User interface advancements:** "A lot of user interface stuff is in the labs, but hasn't gotten out. There is a fundamental shift toward touch," says Fenn. These interface changes include gesture and touch technologies, which will be used to access information in 2010. From there, new display types will offer 3D, be flexible and project over large areas in about 2015. In 2020 the focus will shift from interfaces on a device to interaction with the environment.

**Personal manufacturing and fabbing:** Fenn says that 3D printers will be coming to a Kinko's near you in the not too distant future. Today, these printers are used for industrial prototyping, product designs and architectural models. But there is a growing hobbyist movement. In a few years, you'll see home-based printing of replacement parts. Your kids will print out models of their avatars. These printers, which come from companies like Z Corporation, are in the \$20,000 price range—the price range where laser printers got their start. Timeline: 5 to 10 years.

### Fabbing and the Rise of Personal Manufacturing

- 3D industrial prototyping – product design, production prototyping, architectural models, medical modeling
- 3D faxing for global manufacturing
- 3D printing bureaus
- Rapid interest in hobbyist modeling and art
- Home-based printing of replacement parts



Source: Z Corporation

Gartner

**Mobile robots:** Robots will be increasingly used for lifting and rescue operations, healthcare and human companions. They will also be used for telepresence devices for dangerous jobs. Timeline: More than 10 years from now.

**Human augmentation:** Technology will be used to restore normal performance and will advance performance in the future. These techniques will come via implants, brain interfaces, genetic selection and nerve to prosthesis applications. Humans will achieve infrared vision, sense transference and memory extensions. Think bionic woman. Timeline: More than 10 years.

**Collective intelligence:** Companies will use community knowledge and excel at it. Think crowdsourcing, open source, prediction markets and user ratings as building business models. By 2015, the top 100 companies will have saved at least \$10 million due to collective intelligence.

**Extreme meritocracy:** Performance metrics on any person will be readily available. These metrics will be based on peer reviews and feedback and be publicly available for most professions. The top 5 percent of workers will be more productive and paid accordingly. The downside: Fake reputations and attacks. On the bright side, this development wouldn't become the norm until about 2017.

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