

7.1 Maturity Phase Descriptions

7.1.1 Early Exploration Phase Most exploration activities initially are very mobile and take personnel to a broad array of areas where communications services can range from very good, to very sporadic, to nonexistent, depending on the level of coverage by telecommunications providers in the exploration areas. The communication needs of exploration personnel in the field are generally restricted to voice with limited data requirements, and can be met by cellular or satellite services. In some circumstances, communication needs include human safety concerns, therefore additional features may also be required (e.g., global positioning systems, emergency beacons, Bluetooth® low energy (BLE)).

Historically, data communications have been limited to a “home base”, such as a remote office or hotel with appropriate internet services. Most field data collection uses a computer or tablet to input the data into an application and then upload them to the company network once back at the home base.

However, this situation is changing as newer technologies (e.g., 4G LTE® cellular, wireless internet services) are deployed into rural and remote regions. Some companies use a remote communications utility trailer to provide a satellite uplink, a localized wireless connection (within approximately 100 m of the trailer), basic electronics to provide connectivity and cybersecurity, and a mobile power generator. Some versions even have a small office built onto the trailer.

7.1.2 Advanced Exploration Phase The advanced exploration phase is more static than the early exploration phase and creates the initial foundation for the future mine communications network. It is assumed that the activities of geologists and mining engineers increase as the exploration phase progresses and that temporary or permanent structures are in place for office and field work. Most communications needs are focused within a defined radius of these semi-permanent buildings.

Advanced exploration sites usually begin to build out more complex digital communications systems once the

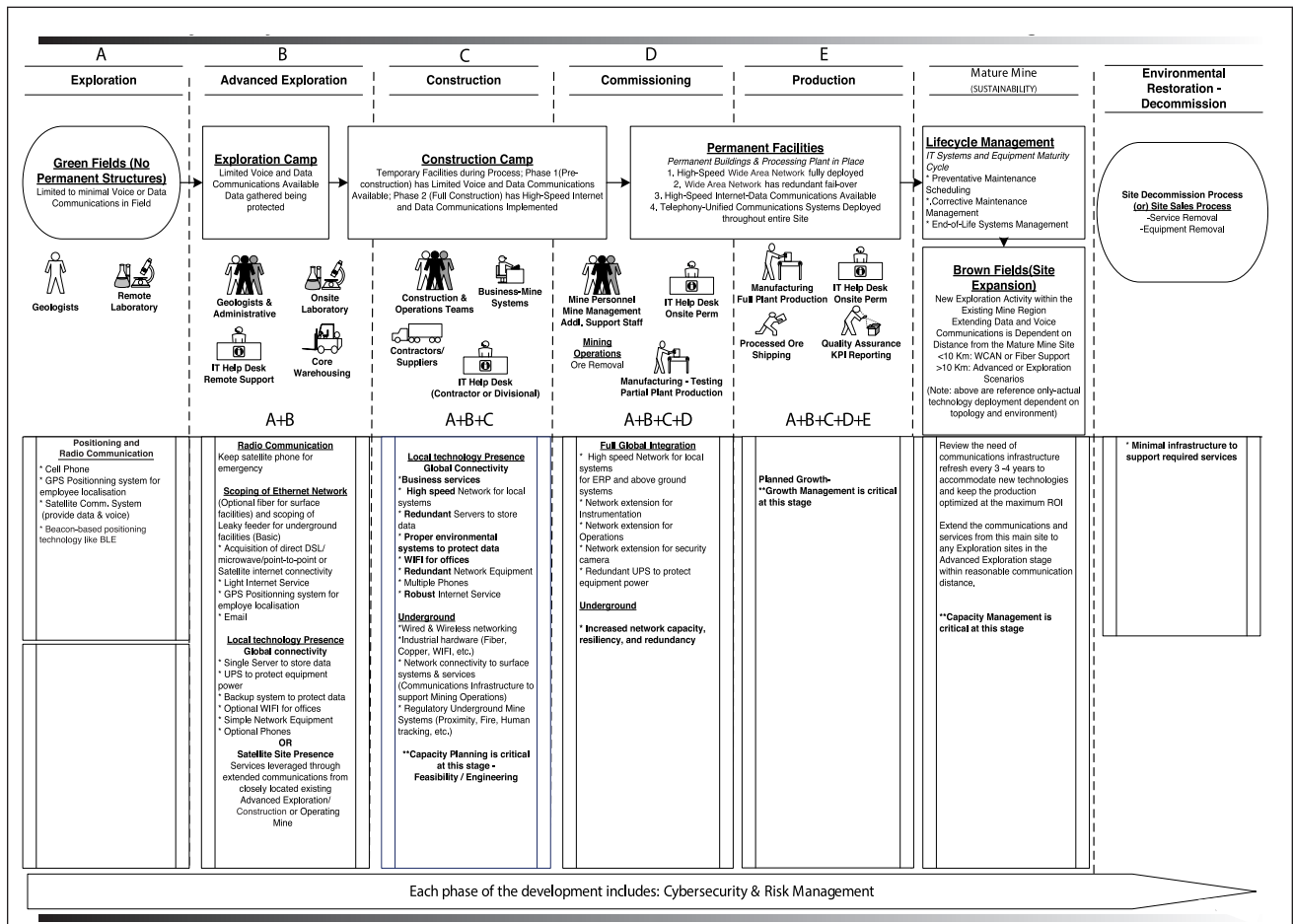


Figure 1. Mine Maturity Lifecycle Example: Communications and Services Structure and Management