Giant robots and small teams

Everyone is familiar with the issues that come from scaling: the shapes of mice and elephants are dictated by their body sizes; cats can survive falling out of windows 7 stories up while at "Head-Smashed-In" in Alberta the Blackfoot peoples used to kill buffalo by stampeding them over a rather small cliff; the film "Pacific Rim" in which giant bipedal robots battle hand to hand with alien monsters, is enjoyable despite the fact that any 70m tall robot would in reality be too weak to lift its own leg up.

My experience is in software development, over more than 30 years I have written code professionally, designed major systems and managed teams of all sizes. In that time there have been very few consistent themes, certainly the languages used, tools available and the systems running the results have varied dramatically. The one consistent lesson that I have learnt though, is that there is an optimum number of contributors that can participate in a productive software team, somewhere between 8 and 12 (depending on goals, personalities and experience). Beyond that point adding more people actually reduces the overall amount of worthwhile results delivered. This is a lesson that those who have never been any more than hobbyists almost always fail to fully appreciate. The fact is that elegance always beats performance, and complimentary components always combine better than mismatched ones means that a team of 5 good developers will almost always deliver much more of value than one of 50 mediocre ones. In the software world the effectiveness of small teams of real experts is well known and widely exploited (unless software teams are being managed by accountants, IT managers, geoscientists or other non-software people).

The dynamic constraints of oil industry exploration or production teams are much more obscure (at least to me), my impression is that smaller teams are more efficient (which is why, in the book, I distinguish between "tiny" and "small" oil company dynamics). The number of specialist subject areas involved certainly makes this an interesting topic, but I suspect the most challenging aspect has to be the difficulty of comparing the success of one team against another. The "hidden" nature of the subsurface means that in the normal flow of business every team always claims success, drilling a dry hole is always declared as a learning experience (although in 6 months' time you probably won't be able to find anyone who will concede they were **on** that particular team). Ideally there world there would be a way to actually measure the value that these mixed domain teams deliver, rather than to rely on subjective estimates. The obvious way to do that would be to compete teams against each other in a controlled "virtual" environment. No one has ever yet done this (please tell me if you know of one). If the effectiveness of E&P teams is not being objectively measured it is hard to see how the contribution that good data handling delivers can be reliably assessed.

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