



# Roadmaps

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## Abstract

Roadmaps are created to visually depict ‘options along the way’. Interpretations of the idea in different contexts, or for different interests, have resulted in roadmaps of varying content — for instance, space, development stages, or action. Therefore, it is not safe to pick up any roadmap ‘off the shelf’: there are choices to be made.

## 1 Introduction

In planning — and generally in life — it is very important to know what we want — whether that is ‘to have’, ‘to be’, or ‘to do’. Before deciding, we may need to *discover* available options, or even *form* our own. If deciding seems difficult, which is a matter of choosing a suitable option, then creating the options may be daunting.

Starting from a nuclear idea, there are a number of planning techniques such as spatialisation and tiering (Perdicóúlis, 2011, pp.85–115) that can help elaborate a number of options. In most circumstances, these techniques help define a desirable simple or complex state to be reached, known as ‘objective’ or ‘set of objectives’. When it comes to defining a *series* of options along time, in the form of a ‘pathway’ or a ‘road’, then *roadmaps* are more suitable — but *which* roadmaps?

## 2 Spatial maps

The original roadmaps refer to space and the physical (alternative) pathways that can be traced going ‘from one point to another’ — Figure 1. Such roadmaps have been traditionally used in land and sea travel, later in air travel, and more recently in robotics.

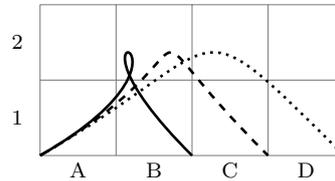


FIGURE 1 Spatial pathways are close to the original concept of roadmaps

### 3 State sequence

The predominant ‘roadmapping’ technique in the academic literature comes from a field known as ‘technology development’. Such roadmaps started being developed in the late 1970s, with initial credit given to Motorola (Phaal and Muller, 2009), or Motorola and Corning (Phaal et al., 2005). Technology roadmaps are now popular in a variety of applications, ranging from industrial development to business administration, and as far afield as peace resolution (Phaal et al., 2005).

The technology development tradition prepares roadmaps as the graphical layout of development phases (of entities such as organisation or products) along time (Phaal and Muller, 2009). An almost ubiquitous feature of this kind of roadmaps is their parallel tracks, referring to different perspectives — for instance, commercial, strategic, production, or technology (Figure 2).

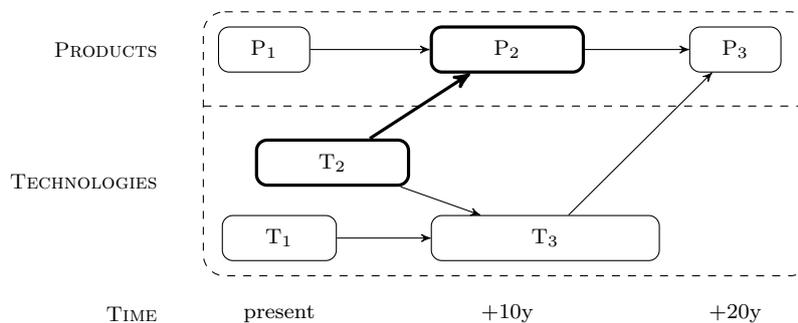


FIGURE 2 Basic configuration of a roadmap in a product development context

The example of Figure 2 illustrates a basic roadmap in the technology development tradition. The x-axis represents time, and the y-axis represents two distinct tracks of interest, or perspectives: products and technologies, both represented by labelled horizontal bars in a Gantt-like fashion — except the bars here do not represent action (or tasks), but rather *states* (or stages) of product and technology development. The perspectives of the y-axis are similar to these used in the Kaplan–Norton strategy maps (Perdicoulis, 2012a), and have a considerable variety across roadmap practice (Phaal et al., 2005; Phaal and Muller, 2009).

The information displayed in roadmaps such as Figure 2 helps the planner and/ or stakeholders to decide on a development path among various options — for instance, as shown in the figure, a commitment to invest in technology T<sub>2</sub> for the development of product P<sub>2</sub>, instead of using technology T<sub>1</sub> that is expected to be outdated sooner, and instead of waiting for T<sub>3</sub> (a co-evolution or merger of T<sub>2</sub> and T<sub>2</sub>), which will not be available for a while.

## 4 Decision-making

In a way similar to driving, a different kind of roadmaps appears as the layout of a road-trip on a map — complete with the places (‘steps’ or ‘stops’) to go through, and instructions for what to do at each place or between places. In essence, this elaborate illustration is a type of decision tree (Figure 3), with various applications — for instance, see [US Environmental Protection Agency \(2005\)](#).

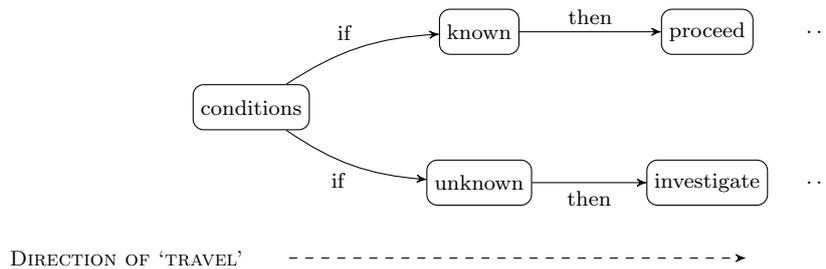


FIGURE 3 Decision-making roadmaps typically include instructions for action

## 5 Strategy

At a higher viewing level, or abstracting a bit more, what seems as pathways are not development stages (as in state sequence roadmaps) or a single process (as in decision-making roadmaps), but a set of alternative ‘action packs’ or processes ([Perdicoulis, 2011](#), pp.34–35). This layout can be seen as a set of alternative options regarding a journey ‘from point A to point B’ (Figure 4), which are *strategic* options — as opposed to the *tactical*<sup>1</sup> aspect of the previous two types of roadmaps: state sequence (§ 3) and decision-making (§ 4).

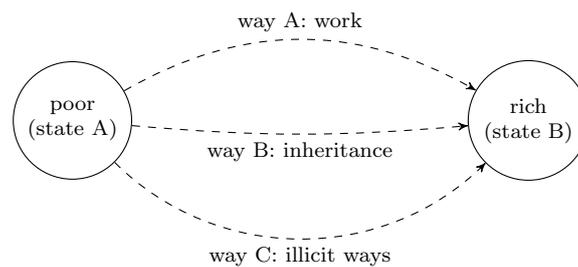


FIGURE 4 A higher (or strategic) view shows ‘bigger-picture’ pathway options

<sup>1</sup> Literally, ‘how to arrange in space, and/ or move’ ([Perdicoulis, 2012b](#))

## 6 Discussion

Since they manage to present choices, all types of roadmaps are useful — albeit in different applications. The question of choice among them is not so much preference, but rather the match between our needs and their contents — for instance, sequences of physical locations, development phases, states and action, or processes. The popularity (or not) of the various roadmap types should not be criterion of choice — suitability is a much more sensible criterion.

## 7 Conclusion

All four roadmaps can be useful in one way or another, depending on the planning needs. The strategic option remains abstract, at a high viewing level, whereas the state sequence roadmaps are operational of a more practical nature. Decision-making roadmaps include a mix of states and actions, somewhere between state sequence and strategy roadmaps. Of the four types, spatial roadmaps are the most ‘on the ground’.

## References

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