G1/19 - Patentability of computer implemented simulations

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- The referral – a background

- The interlocutory decision

- Answering the referred questions

- A philosophical digression

Case Number: T 0489/14 - 3.5.07

Application Number: 03793825.5

Publication Number: 1546948

IPC: G06F17/50

Language of the proceedings: EN

Title of invention:
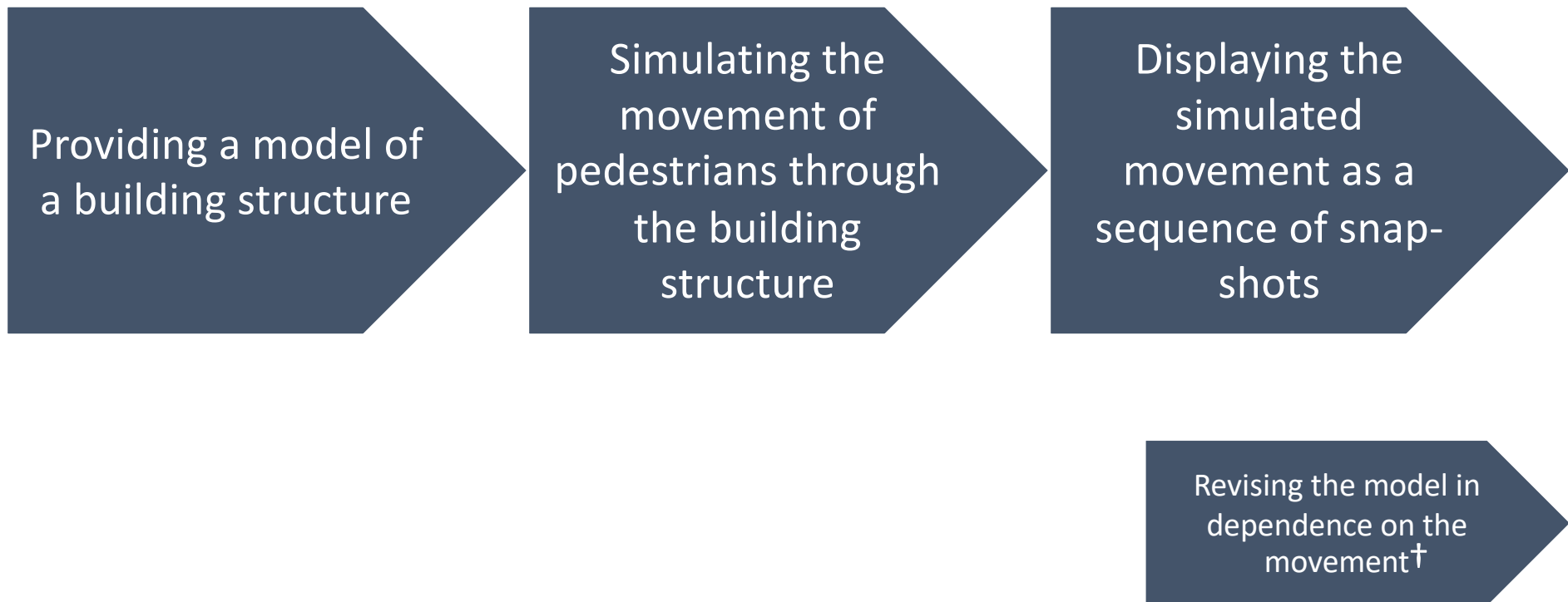Simulation of the movement of an autonomous entity through an
environment
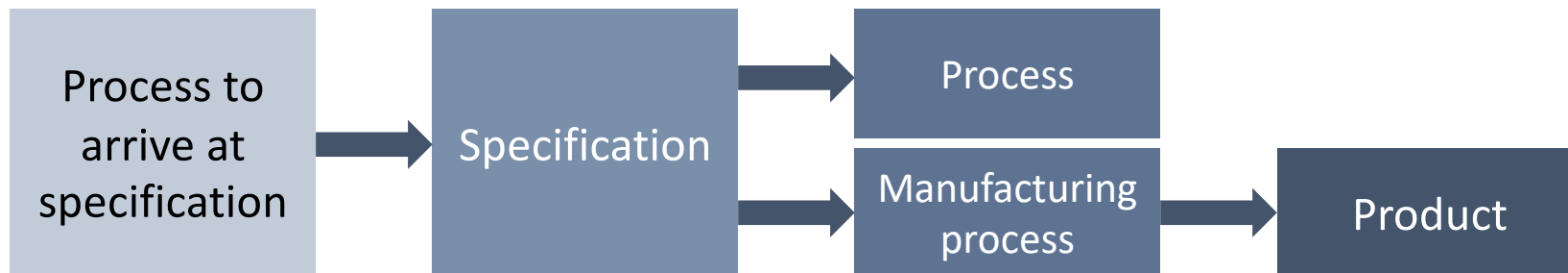
Applicant:
Connor, James Douglas
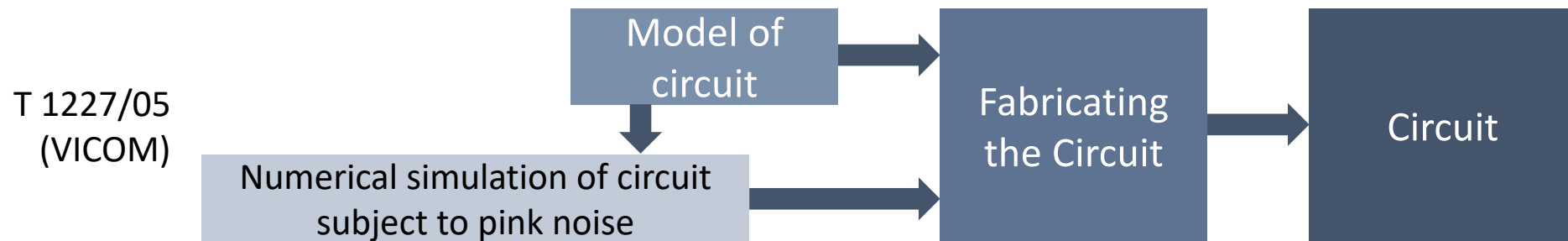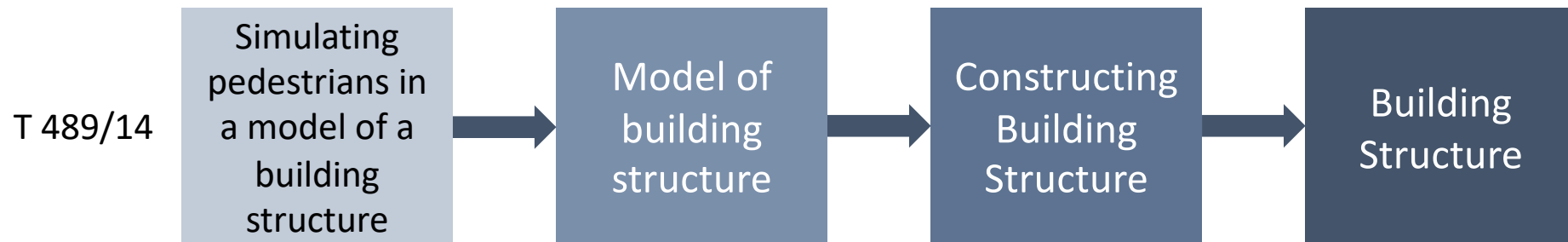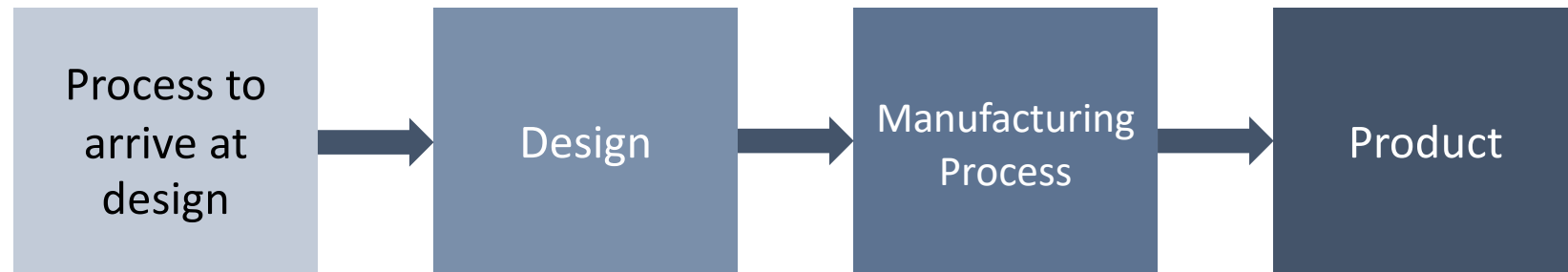
Interlocutory T 489/14 – Referred Questions

1. In the assessment of inventive step, *can the computer-implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such*?

2. If the answer to the first question is yes, *what are the relevant criteria for assessing whether a computer-implemented simulation claimed as such solves a technical problem*? In particular, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?

3. *What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design*?

The crux?

Patentability of novel, inventive, technical solutions to technical problems:

The crux?

Process to arrive at design	Design	Manufacturing Process	Product
T 489/14 Simulating pedestrians in a model of a building structure	Model of building structure	Constructing Building Structure	Building Structure
T 1227/05 (VICOM) Model of circuit Numerical simulation of circuit subject to pink noise		Fabricating the Circuit	Circuit

Interlocutory T 489/14

- Reason 11: "A technical effect requires, at a minimum, a direct link with physical reality, such as a change in or a measurement of a physical entity"

- The board in T 489/14 points to G 2/07 (Broccoli) for support:

  - "Forces of nature" – deriving from the German "*Red Dove*" decision of 1969[1]

[1]BGH 27.3.1069, X ZB 15/67

"a direct link with physical reality, such as a change in or a measurement of a physical entity"

- The EPO President already grappled with this in the referral of 23rd October 2008 – heard as G3/08. The referral states:

  "According to decisions T 163/85 and T 190/94, a technical effect on a physical entity in the real world was required."

  (EPO President's Referral 23/10/08, OJ 3/2009 p142, Section III)

- This proved incorrect. Neither of these decisions <u>require</u> a technical effect on a physical entity in the real world: this is a *sufficient condition*, but not necessary one.
  (G3/08 reason 12.3)

"a direct link with physical reality, such as a change in or a measurement of a physical entity"

- What is a *physical entity*?

  - T 208/84 (Vicom), Reason 5: a physical entity "may be a material object but equally an image stored as an electric signal"

  - T 453/91 (IBM/VLSI), Reason 5.2: when VICOM said "image" it meant an "image of a material object".
    - The Board required a manufacturing step… ("*materially producing the chip so designed*")

Interlocutory T 489/14

- Reason 15: re. **T 1227/05** (Circuit Simulation I/**Infineon**), "The board is not fully convinced by the decision's reasoning"

  - Firstly, a computer-implemented simulation *"...assists the engineer only in the cognitive process of verifying the design of the circuit or environment"* which it considers is *"fundamentally non-technical"*.

  - Secondly, T 1227/05 relies on a *"greater speed of the computer-implemented simulation as an argument for finding technicality"*.
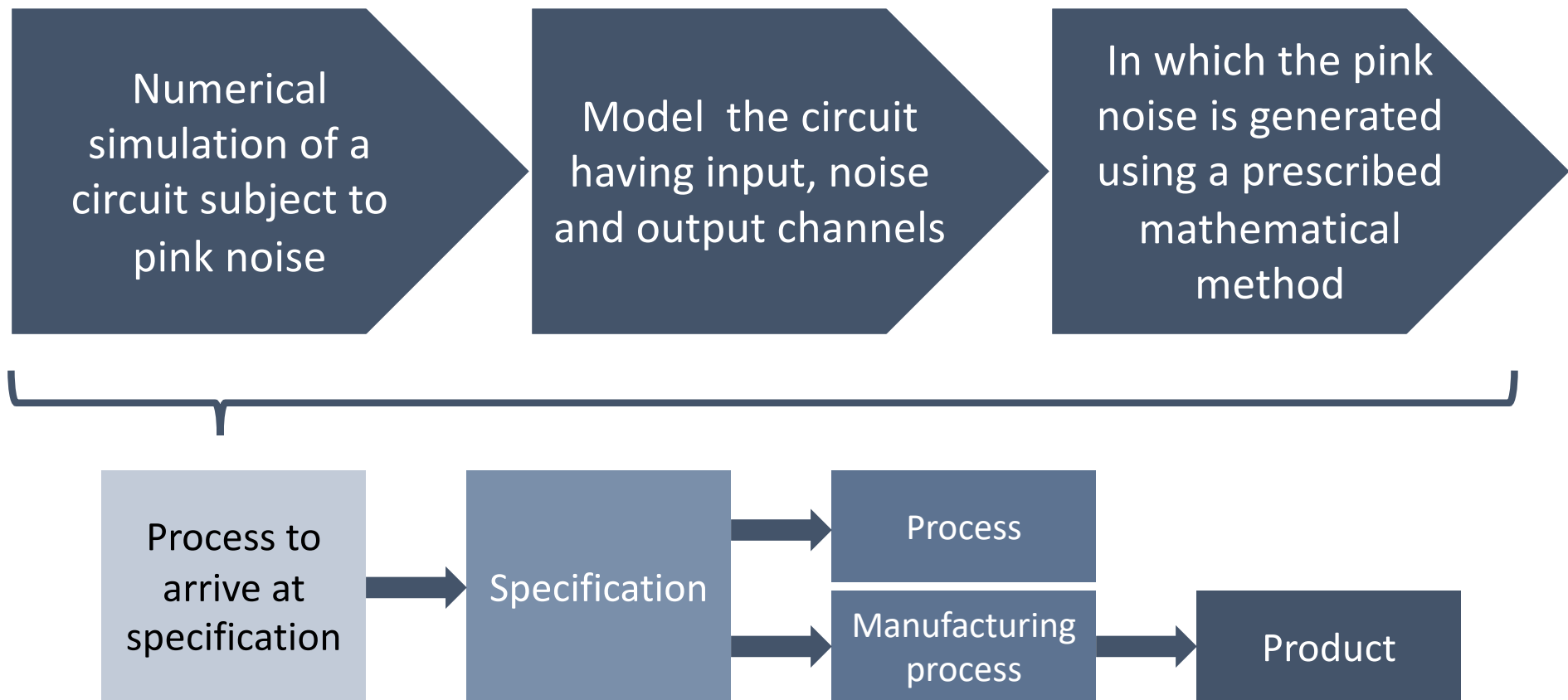
T 1227/05 (Infineon)

- Reason 3.1: a step of a computer-implemented method "*may contribute to the technical character of a method only to the extent that it serves a technical purpose of the method ... provided the method is functionally limited to that technical purpose*".

T 1227/05 (Infineon)

A computer-aided method…

Numerical simulation of a circuit subject to pink noise → Model the circuit having input, noise and output channels → In which the pink noise is generated using a prescribed mathematical method

Process to arrive at specification → Specification → Process

Specification → Manufacturing process → Product

Answering the referred questions

1. In the assessment of inventive step, *can the computer-implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such*?

   Yes, in accordance with the established case law since T 1173/97 (Computer program product/IBM).

2. If the answer to the first question is yes, *what are the relevant criteria for assessing whether a computer-implemented simulation claimed as such solves a technical problem*? In particular, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?

   The relevant criteria are the same as those for any computer-implemented method as summarised in reason 5 of T 0154/04 (Estimating sales activity/Duns Licensing) and confirmed in G 3/08 (reason 10.13.2)

3. *What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design*?

   The answers to questions 1 and 2 are the same

Philosophical Digression

Thank you for your attention!

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